Our Municipal Notebook

Factory Dispersal for National Security And Rational Town Planning

POWERFUL impetus for the building of new "greenbelt" towns and for the rational development of existing small cities is given by the National Security Resources Board in its report, released last month, on "National Security Factors in Industrial Location."

Estimating that 12 to 14 billions of dollars are being spent annually in the United States for new industrial plants and equipment, the Board finds that too many of these plants are being located in highly concentrated areas which will be the most attractive targets in the possible event of war.

Cities of not more than 50,000 people would, in general, be most free from atomic bombing, as the report points out:

> Atomic bombs exploded to date have destroyed almost everything within a one-half mile radius of the zero point. Beyond the periphery of this first area, and extending to a distance of about one and one-half miles, they caused moderate damage to all structures. Allowing for future developments, it is not expected that an improved bomb would cause heavy damage beyond a distance of three miles from point of detonation. The possibility of a super bomb that will wipe out an entire state is too remote to warrant serious consideration. . . .
>
> Studies made to date indicate that areas of industry concentration of less than five square miles, or urban concentrations of less than 50,000 people, separated by about 10 miles of relatively open country, will be reasonably secure from attack under all circumstances expected to prevail. These factors may be employed as a yardstick in evaluating prospective sites, although admittedly, such thumb-rules tend to oversimplify the problem. . . .
>
> If the industrial facilities of the United States were effectively dispersed, that fact alone would make an incalculable contribution toward the maintenance of peace because of the prohibitive expense of any enemy attempt to destroy this country's ability to defend itself. Dispersion could contribute significantly toward outlawing war.

THE AMERICAN CITY commends this type of preparedness, not only because of its bearing on national security in what we hope is the remote contingency of another war, but also because the recommendations of the National Security Resources Board are in line with the repeated advocacy by this magazine of spacious urban development and of the "garden city" or "greenbelt" type of community as prime objectives of rational city planning.

Every municipal official must desire to lessen the vulnerability of his community in the event of war. If this desire shall lead to more open types of town planning and to the acquisition and preservation of "greenbelts" around urban peripheries, substantial and permanent benefits will result—whether war comes or not.

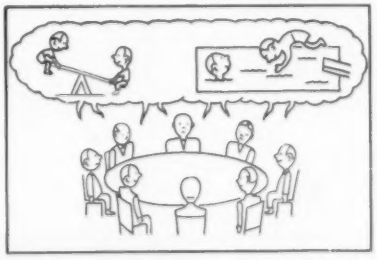
See also pages 133 and 137 of this issue, and the article "Greendale and the Future," by Clarence S. Stein, in THE AMERICAN CITY for June 1948, pages 106-109 (reprints available).

"Let's Talk It Over"

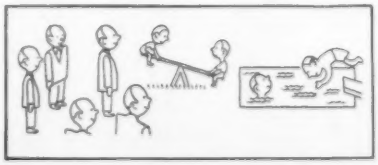
STRIKING examples and results of the growing eagerness to get together and talk things over on the level of the local community are cited by Dr. Howard Y. McClusky, Professor of Educational Psychology at the University of Michigan, in an article with graphic sketches, reprinted in a pamphlet from *The Lamp*, a publication of Standard Oil Company (New Jersey).

The importance of the intangible as well as the tangible results of group discussion is emphasized by Dr. McClusky:

> "You can see a new playground, a swimming pool, a teen-age canteen, and have it pointed out to you with pride. It is much more difficult, if not impossible, to detect a lessening of prejudice or a growing willingness to examine new ideas scientifically rather than emotionally. Yet those same qualities, so greatly stimulated by group discussion, may be fundamental to the survival of our society.
>
> "The very act of participation in a group discussion does something for the individual. It is one of the few opportunities remaining to him to crystallize his own thoughts and give them expression in an age when there are so many institutions set up to do his thinking for him.
>
> "This participation carries him along in his adjustment to the community in which he has his life. He becomes conscious of the community and the community becomes conscious of him. Often the expres-



Discussion . . . and Realization.



The American City Quiz

Match Wits With the Experts

QUESTIONS

1. ***What part does water supply play in the possible spread of poliomyelitis?***
2. ***What is the cost of overhead water storage tanks?***
3. ***How frequently should water customers be billed?***
4. ***How frequently should one clean a water main?***
5. ***What is the equivalent oxidizing power of ozone and chlorine?***
6. ***What should be the ratio between the night rate of water use to use during the day?***
7. ***How many men are employed in water supply in proportion to the number of people served?***
8. ***When was the first portland cement concrete pavement laid?***
9. ***Where is the oldest asphalt-paved street in the United States?***
10. ***In what way may garbage be treated to avoid trichinosis infection when the garbage is used for hog feed?***
11. ***What is the average loss per dwelling fire?****
12. ***What is the first rule of fire prevention?***
13. ***Whose advice would you get before purchasing a fire extinguisher?***
14. ***What type of material should you use for roofing?***

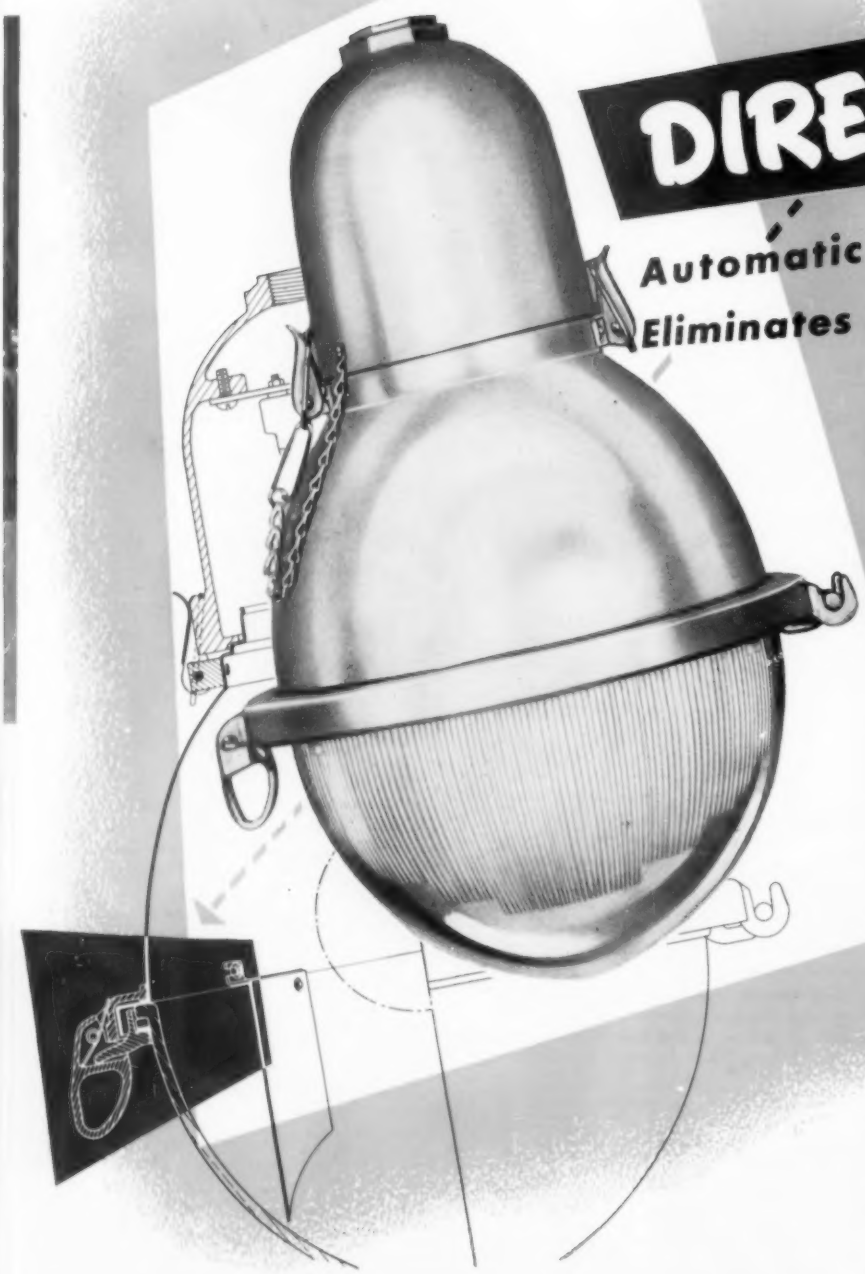
* Questions 11, 12, 13, 14 are from the *Fire Safety Quiz*, the National Fire Protection Association, Boston, Mass.

(Answers on Page 7)

It's New! the JOSLYN

DIRECT SEAL

Automatic Latching Luminaire
Eliminates Troublesome Gaskets



This new unique Joslyn Development provides a *direct-seal* between glassware and reflector without the use of gaskets which have proved to be troublesome and inadequate for street lighting applications. It results from our constant effort to provide Street Lighting Equipment of the highest efficiency and durability.

The following are some of the outstanding points of merit:

1. Circular wave type spring assures uniform high pressure direct-seal of glassware to reflector.
2. Latch and hinge attached to die cast aluminum ring which surrounds bottom flange of reflector thereby preventing distortion of reflector due to latching pressure.
3. The glassware holding ring of die cast aluminum and circular wave type spring are easily and quickly attached to the Holophane refractor or globe by applying pressure and rotating to the locking position.
4. The high pressure automatic latche draws the glassware ring upward, compresses the circular wave type spring and thus provides a tight direct-seal of uniform pressure between glassware and reflector.
5. This design permits easy relamping from the ground with a switch stick and lamp replacer.
6. This luminaire conforms to latest requirements as to interchangability with respect to reflector-glassware assembly, sockets and series receptacles.

Branch offices in principal cities

THE JOSLYN CO.
THE SOUTH EAST-JOSLYN CO.
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Complete Pole Line Equipment

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sion of his thoughts in public brings the first realization that he can be a force in his community, a step which is frequently followed by others of a more concrete nature."

The author makes a special plea to business men:

"Almost every question which comes up today for discussion, such as housing, labor-management relations, control of atomic energy, race relations, or rehabilitation of Europe, has some aspect of economics on which the well-informed businessman can make a valuable contribution. Furthermore, the businessman by the very nature of his calling has a practical viewpoint on things which can serve as a useful corrective to more theoretical views in discussion."

Copies of this pamphlet, "Let's Talk It Over," are available without charge on application to Standard Oil Company (New Jersey), Room 1626, 30 Rockefeller plaza, New York 20, N. Y.

Two Adams Sons Head Professional U. S. and British Planners

ALTHOUGH separated by the Atlantic, two sons of the late Dr. Thomas Adams, famous town planner and author who pioneered in the development of much current planning thought in Great Britain and the United States, have both received the highest honors of their profession.

In July, James W. R. Adams, eldest son, was elected president for the year 1948-49 of the Town Planning Institute of Great Britain. He will take office in November. Mr. Adams is County Planning Officer for Kent.

Another son, Professor Frederick J. Adams of M. I. T., was recently elected president of the American Institute of Planners, which is having its annual meeting in Long Beach, Calif., Sept. 16 to 19.

Thomas Adams was the founder and first president of the British Town Planning Institute as well as an active member of the American Institute of Planners during his years in America.

Fort Worth and Hartford Parks

THE Long Beach Chamber of Commerce has discovered two errors in its 1948 *Parks and Recreation Survey*, summarized in THE AMERICAN CITY for July 1948, page 95.

The park area of Fort Worth, Texas, should have been reported as 40 acres per 1,000 population. This puts Fort Worth at the head of the list.

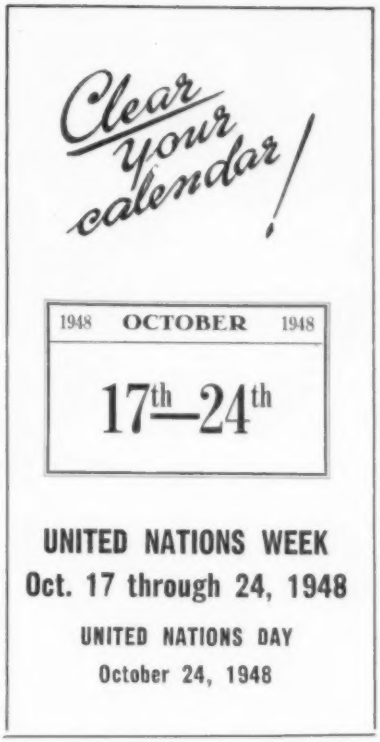
For Hartford, Conn., the Long Beach Chamber of Commerce reports, the park area figures did not include 1,750 acres outside the city.

Cities Get Ready for United Nations Week

THE American Association for the United Nations, together with the National Broadcasting Company and the National Educational Association, will sponsor the third nation-wide observance of United Nations Week, October 17 through October 24. United Nations Day, October 24, will climax the week's activities. Over 65 national organizations are cooperating to make this United Nations Week a success.

Forums throughout the country will take the spotlight this year, centering on the accomplishments and potentialities of the United Nations. The overall theme of the Week emphasizes the United Nations as the foundation of United States foreign policy.

Municipal officials and local civic organizations can help to make United Nations Week a success. Detailed suggestions for community activity are given in a 12-page leaflet, published by the American Association for the United Nations, 45 East 65th St., New York 21, N. Y., the cover of which is here reproduced.



The American City Quiz

Match Wits With the Experts

ANSWERS

to questions on page 5

1. Dr. E. R. Krumbiegel, Commissioner of Health, Milwaukee, Wis., states that there is no evidence available to the doctor or bacteriologist justifying the belief that municipal drinking water supplies are a factor in the spread of polio. This statement agrees with findings by The National Foundation for Infantile Paralysis.

2. Donald H. Maxwell, of Alvord, Burdick and Howson, states that in tanks 100 feet high the per-gallon costs are 40 cents for 50,000 gallons, 17 cents for 300,000 gallons, and 16 cents for storage in 1-mg tanks. This is for the complete structure, including foundations.

3. No more frequently than once every two months, says G. D. Arnold, Assistant City Manager of San Diego, Calif., except for big users.

4. J. A. Frank, vice-president of the National Water Main Cleaning Co., states that a drop in flow coefficient and an increase in pumping cost is of course the primary guide. Water utilities his company has served have found that clean pump mains pay for themselves in 3 to 6 months in power savings alone. Of course, it is not necessary to clean all mains this often. In gravity systems the frequency is often close to 15 years.

5. Stanley Jenks of Ozone Processes, Philadelphia, reports that 1 ppm of ozone is the equivalent of 1½ ppm of chlorine.

6. Experience by the Pitometer Co., a New York City firm that specializes in leak detection, has been that the night rate should be no more than 30% of the day rate in most systems. If it is greater than this, the system probably has leaks that should be corrected.

7. According to AWWA Secretary Harry Jordan, the water industry employs one man per 1,000 persons served in the average system, one per 1,500 served in large systems.

8. In 1891 at Bellefontaine, Ohio. The pavement is still in use.

9. West Wayne Street, from Harrison to Nelson, Fort Wayne, Ind., built in 1899.

10. Adequate boiling, heating all particles of the meat to 137° F., will render the pork scraps free of trichinosis infection, according to the U. S. Public Health Service.

11. $200.

12. Good housekeeping.

13. Your fire chief's.

14. Fire-retardation roofing materials.

Send in your suggested questions with the answers on municipal topics for use in this feature. THE AMERICAN CITY will make a small payment for each question accepted.

1,250,000-GALLON STANDPIPE SERVES MANHATTAN

The 1,250,000-gal. Horton standpipe shown here is an all-welded steel structure erected for the city of Manhattan, Kansas. The standpipe will provide gravity water pressure to help the city's pumping equipment maintain uniform pressures in the mains and to meet peak loads.

Welded steel reservoirs are practical for furnishing gravity water pressure in a municipal water system where they can be erected on high ground. They have several advantages. Steel will not crack or leak if there is uneven settling. The welded joints are tight and stay water tight. Maintenance costs are low, as regular painting inside and outside keeps the steel in good condition.

Ground level reservoirs are just one type of storage tanks we build for municipal water supply systems. Others include Horton elevated tanks and Horton Waterspheres. In many cities, Horton tanks are contributing to better water service, and are paying for themselves in relatively short periods of time by increasing the efficiency of pumping equipment and lowering pumping power costs. For estimating figures on these structures, write our nearest office outlining your requirements.

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Houston 2 ..... 2 01 National Standard Bldg.
Los Angeles 14 ..... 1403 Wm. Fox Bldg.
New York 6 ..... 3308—165 Broadway Bldg.
Philadelphia 3 ..... 1616—1700 Walnut Street Bldg.
Salt Lake City 1 ..... 1501 First Security Bank Bldg.
San Francisco 11 ..... 1233—22 Battery Street Bldg.
Seattle 1 ..... 1301 Stuart Bldg.
Tulsa 3 ..... 1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LIKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

In Case of War, Flood, Fire . . .

IN CASE of disaster, how should local, state, and national authorities act to protect health and reestablish water supplies? This came in for close study by a group of authorities at the American Water Works annual meeting in Atlantic City, N. J., in a prepared symposium.

First of the speakers was L. M. Fisher of the U. S. Public Health Service. The Health Service, Mr. Fisher stated, would first secure available information about the extent and the seriousness of the emergency. This would come from state agencies, Red Cross, and other organizations.

Next, the Service would determine the amount of assistance needed. This it would get from the state health department, local agencies, or other sources. It next would contact local health authorities after clearance with the state. Under emergency measures, with local authority gone, the state authorities take over. Should the Health Service be first on the scene, it would act in place of state or local agencies until they arrive.

The Health Service can provide from its own personnel, for work of this nature, men on active duty in regular, reserve, or civil-service capacity. These include water-plant operators, milk and food sanitarians, laboratory technicians, public-health administrators, civil and sanitary engineers.

The Health Service can also provide limited numbers of mobile laboratories, chlorinators, and filter units.

On the state level, B. A. Poole, State Sanitary Engineer, presented his viewpoint. Virtually all natural disasters, he said, should be handled at state and local level. Every state should have a disaster committee backed with adequate authority.

Mr. Poole expressed his opinion that there is no need for an organization as comprehensive as the OCD of the last war.

War planning is more complicated, he stated. No one can predict what is required, or what would happen if fission products of an atomic explosion should get into the headwaters of a major river system. He recommended that a small group of U.S. Public Health officers be taken into the confidence of those working on atomic energy and study countermeasures.

Arthur Gorman, Sanitary Engineer with the Atomic Energy Commission and wartime member of the War Production Board, stated that from an over-all standpoint, the water industry is not in as favorable a position as it was at the outbreak of the last war.

The rapidly growing atomic energy industry has problems in the disposal of its wastes which involve public health and safety and is conducting extensive experiments to solve them. Radioactive waste problems opens a new field of research and control, he stated.

H. E. Gerstein, Chief Filtration Chemist, and R. E. Noble, Bacteriologist, both of the Chicago Water Department, appraised the recent advances in chemical and biological warfare in relation to effects on water resources. No bacterial agents have been used in past military operations, they pointed out. However, because of recent developments in use of these agents, their effectiveness cannot be discounted.

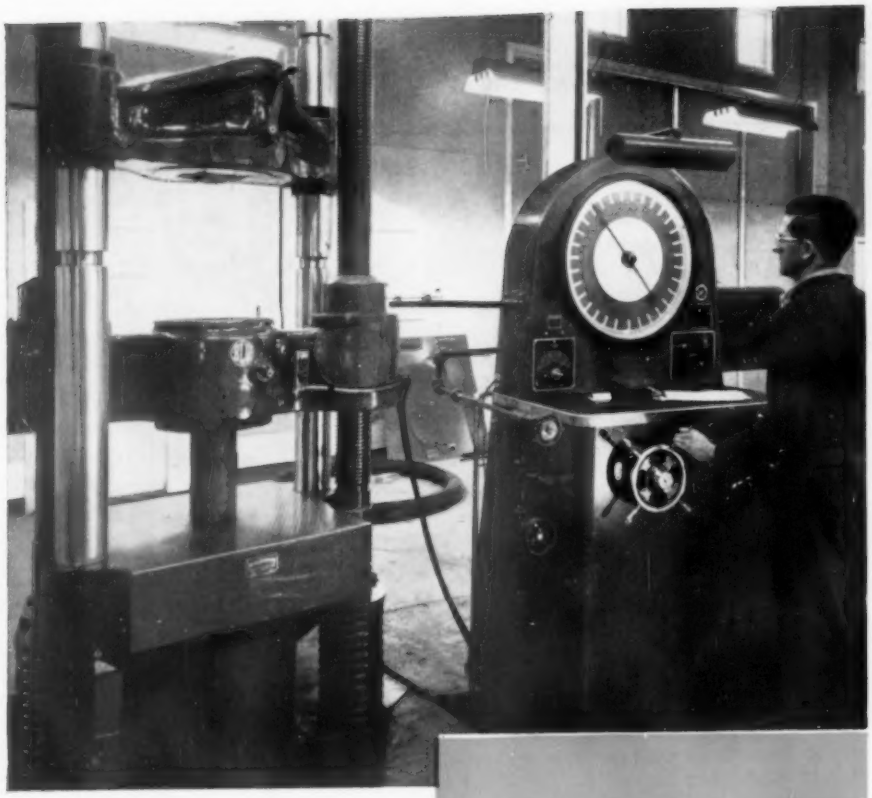
U. S. Public Health Service mobile equipment, available for emergency work.

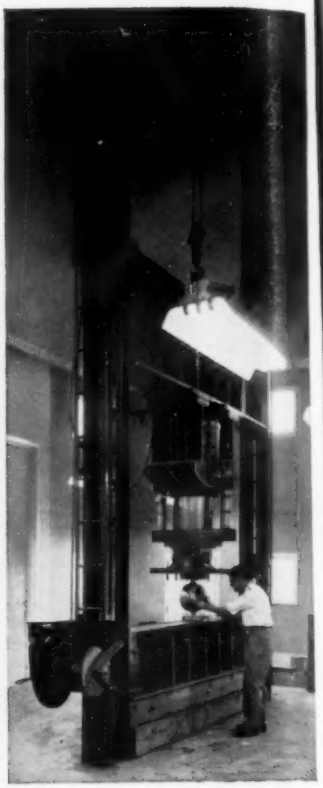
Tulsa to Build New Dam and Pipeline

TULSA, Okla., will triple its water-supply capacity, according to plans recently authorized by the voters of that city. Recently, a $15,750,000 bond issue was authorized that will make possible the construction of facilities that will bring an additional 40 mg of water into the city from Spavinaw Creek, 65 miles to the northeast.

The new project consists of a new dam on Spavinaw Creek 10 miles above the present one, the laying of a new reinforced-concrete pipeline consisting of 72- and 66-inch pipe paralleling the present 60- and 54-inch supply line, raising the present dam, and building a 15-mg high-service reservoir on the hills west of the city. The 84-inch pressure tunnel on the pipeline, two miles long and built in 1924, is large enough to accommodate the new service.

W. R. Holway and Associates, Tulsa, are drawing plans for the work, and will supervise the construction. Loyd Sanders is chairman and A. E. Bollin is vice-chairman of the Utility Board of Tulsa.





ABOVE: Calibrating Testing Equipment at the Wharton Laboratory

ABOVE LEFT: Testing Concrete Cylinder for Compressive Strength

All materials used in the manufacture of Lock Joint Prestressed Concrete Cylinder Pipe are carefully tested to assure their uniformly high quality.

In Lock Joint's Laboratory at Wharton, New Jersey, accurately calibrated testing equipment checks the physical properties of all materials which constitute the finished product and test the physical characteristics of the completed pipe.

This constant check on all materials used in Lock Joint Pressure Pipe assures the top quality and long, useful service of the finished product.

CONSTANT TESTING assures top quality

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

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Kenilworth, N. J. . . . Hartford, Conn.

Street Cleaning and Refuse Disposal

The Right Snow-Fighting Equipment

SEPTEMBER'S bracing and beautiful fall days may mean charm and beauty to most people, but to the alert municipal official they bring another reminder. Fall always brings winter after it, and winter brings snow. An alert city should be ready and equipped for this recurring municipal problem.

What sort of snow-removal equipment does a city need? Municipal equipment always must be versatile. Only on rare occasions can a city afford to purchase specialized gear for limited use. The best snow-removal equipment works spring, summer, and fall on other tasks.

Plows are the backbone of the equipment—plows mounted on graders and trucks equipped with two-way radios so that they can be called in quickly from other tasks and will go into action fast while the snow is still soft from the rock salt and easily handled. While the plows themselves cannot be used the year round, the trucks and graders can, and the storage of the plows does not take much room, nor do the plows themselves entail a great deal of expense.

Loaders reinforce the plows. Buy your loaders with an eye for year-round service, loaders that will give a good account of themselves scooping up the snow in the bitter cold of winter, and that at the same time will handle aggregate- and dirt-loading work in the summer. If your city is large enough to purchase one of the large snow blowers, don't overlook their use during the fall when it comes to leaf gathering, for these big blowers handle leaves as easily as they do snow. At least one manufacturer has built the blower with a discharge pipe that can be turned. A lot of possibilities present themselves with it. This makes it easier to load the truck, makes it possible to direct the snow onto vacant lots, or even to shoot it onto the property owner's lawn if the operator is careful. All this cuts into the big cost—hauling.

Hauling requires the most careful sort of scheduling on the part of the municipal official. As trucks complete plowing, many can be rescheduled for the loading and hauling operation. Also at this stage comes that delicate decision whether to rent trucks or whether to own a large enough fleet to meet the snow-hauling requirements.

When studying truck requirements don't fail to include consideration of those big four-wheel-drive units that can be called in to handle the situation when the going gets really tough. There is plenty of work for these big fellows during the rest of the year also.

The time to appraise these needs is now, and the time is late. Be equipped and ready when the snow flies.

Canvas Bags Speed Collections

THE WASHINGTON Suburban Sanitary Commission of Hyattsville, Md., simplifies refuse-collection work by using canvas bags that eliminate the unnecessary transportation of refuse receptacles.

The bags are squares of 8-ounce burlap made by sewing two strips together to make a cloth 78 inches by 88 inches. A man lays this cloth on the ground, empties the refuse containers on it, picks up the four corners, and throws it over his shoulder.

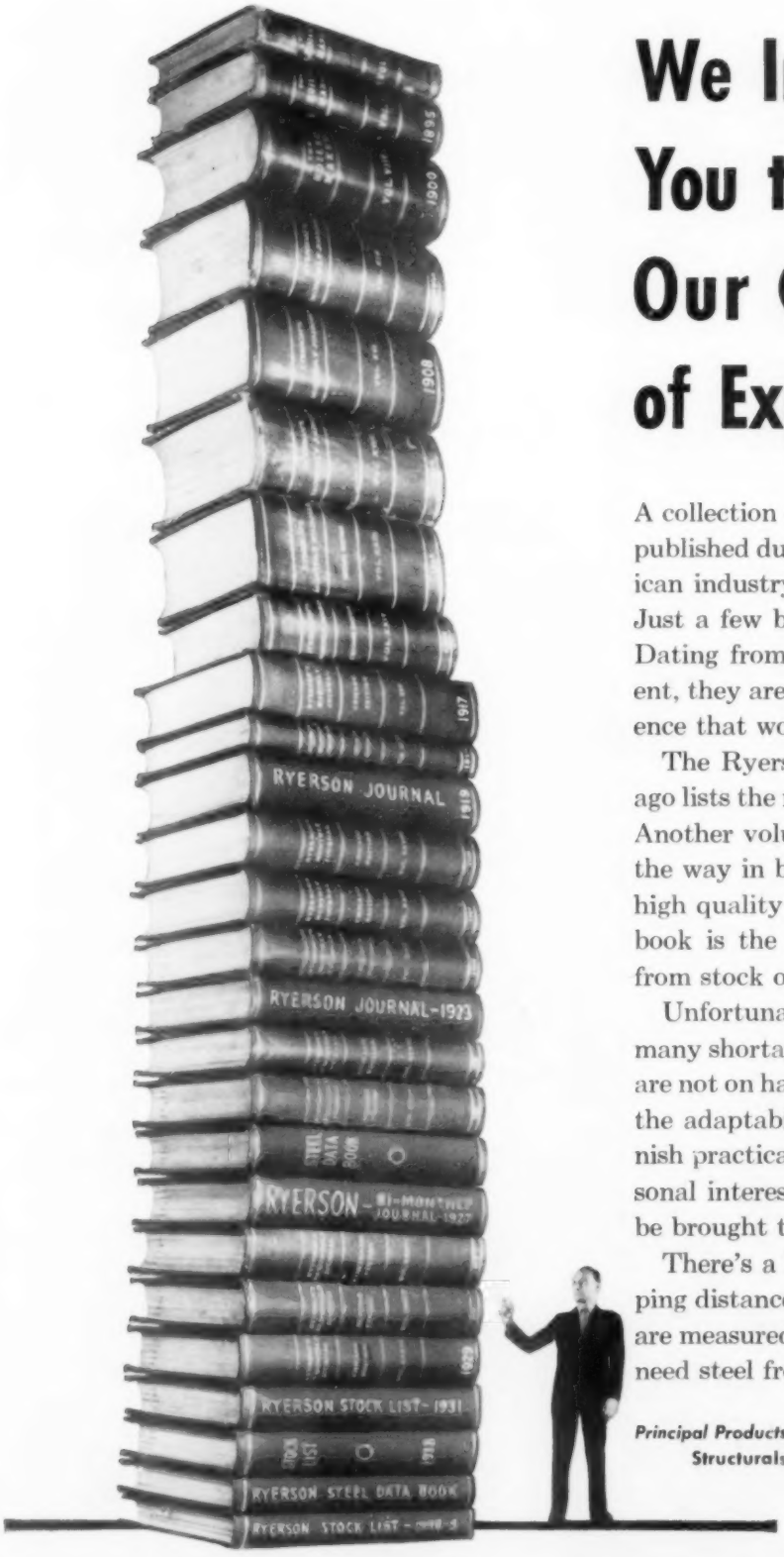
The refuse is mixed garbage and trash, and generally dry. The Commission makes two collections a week. The men can put refuse from one to five houses in a single sack.

The Commission started the refuse collection service in Montgomery County, Maryland, in 1943, at the height of the war. Some of the crews were using burlap, and some used galvanized iron tubs in which to collect refuse. Tubs became scarce and the burlap was found to be much more efficient in collecting at back doors so burlap alone is now in use, and is found to be rather costly. However, a substitute is being sought as burlap has a short life. Eight-ounce burlap squares last five days and hold 60 to 80 pounds of mixed refuse.

The work is under the direction of Harry R. Hall, Chief Engineer of the Washington Suburban Sanitary Commission.

The collector dumps the refuse on the outspread burlap "bag" . . .

then carries the burlap "bag" to the collection truck to be emptied.



We Invite You to Share Our Century of Experience

A collection of all the Ryerson steel literature published during a century of service to American industry would make quite a shelf load. Just a few bound volumes are pictured here. Dating from pre-Civil War days to the present, they are solid evidence of the steel experience that works for you at Ryerson.

The Ryerson Journal of a quarter century ago lists the nation's first stainless steel stocks. Another volume is evidence that Ryerson led the way in bringing carbon steel stocks up to high quality standards. And in a more recent book is the first plan for buying alloy steel from stock on the basis of hardenability.

Unfortunately, current demand is causing many shortages. But when your requirements are not on hand, Ryerson specialists who know the adaptability of every steel can often furnish practical alternates. Certainly great personal interest and volumes of experience will be brought to bear on your problem.

There's a Ryerson plant within short shipping distance. So, whether your requirements are measured in pounds or tons, call when you need steel from stock.

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Sewerage and Sewage Treatment

International Agreement

INTERNATIONAL attention was focused on stream pollution through State Department levels both in the United States and Canada last year. And international agreement on objectives of corrective action resulted that should set an example of cooperation for problems no less difficult but more highly publicized.

In April 1946, Secretary of State James F. Byrnes addressed a letter to the International Joint Commission pointing out pollution in the waters of the St. Clair River, Lake St. Clair and the Detroit River. Simultaneously N. A. Robertson, Canadian Secretary of State for External Affairs, addressed a similar letter. Both requested a report and recommendations on abatement.

Subsequently in the late spring of this year the International Joint Commission adopted preliminary objectives drafted by the Board of Technical Advisors. The objectives on standards laid special emphasis on industrial wastes. These were the pertinent factors:

1. Plant effluent should have no more than 0.01 ppm of phenols or phenolic equivalent.
2. The iron content in industrial plant effluents should be less than 17 ppm.
3. The effluent pH range should be within 5.5 and 10.6.
4. The odor should not be more than a threshold count of 8 when the effluent is discharged and mixed with the receiving stream.
5. Unnatural color that renders the water offensive in appearance should be removed.
6. Oil and floating solids should be removed that create fire hazards, coat hulls, injure wild life or recreational functions. The figure of 15 ppm is given as an upper limit.
7. Highly toxic wastes are to be removed or reduced to safe limits. These include free halogens, metals such as chromium, and cyanides.
8. Oxygen-demanding materials such as solids, bacteria, and other constituents that reduce the dissolved oxygen content unreasonably should be removed.

Starting Lineup for FSWA Annual Meeting

HERE is the way the Federation of Sewage Works annual meeting program is shaping up, according to program chairman F. W. Gilcreas:

General

Mechanisms of H_2S production, by Professor Rolf Eliassen, New York University.

Treatment Biology, by Dr. James B. Lackey.

Bio-Precipitation of Organic Matter, by D. A. Okun.

Effect of Synthetic Detergents, by Dr. Willem Rudolfs.

Activated Sludge

Mathematics of Bulking, by Leon S. Kraus.

Efficiency Factors, by Professor William E. Stanley.

Industrial Waste

Atomic Energy Wastes, by Arthur E. Gorman.

Dye Plant Wastes, by Dr. V. L. King.

Dairy Wastes, by Professor E. F. Eldridge.

Chemical Manufacturing Wastes, by Dr. R. W. Hess.

Indices of Stream Pollution, by Professor Don E. Bloodgood.

Operation

Milwaukee Maintenance Procedures, by Lloyd D. Knapp.

Operator's Forum, by Ralph E. Fuhrman.

The meeting is scheduled for October 18-21, at the Hotel Statler, Detroit.

Jeep Meets Tractor in Sewer

COURTESY OF GOODYEAR NEWS SERVICE

Jeep, with officials, emerges from a sewer in the Borough of Queens, New York.

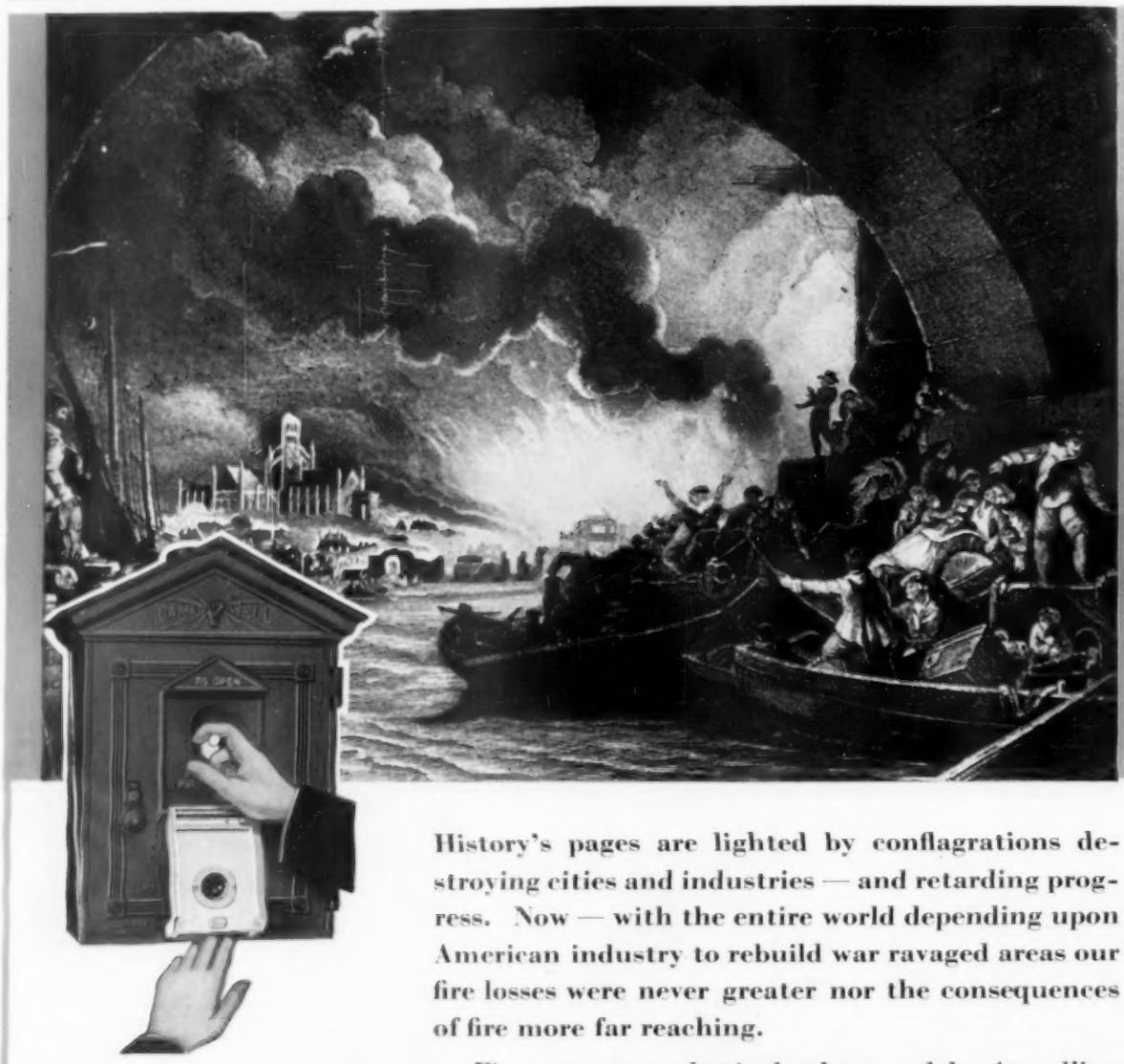
IT took what is probably the largest-sewer development project anywhere to make this meeting possible. Last June, on an official jeep-ride tour of inspection through the three-mile $10,000,000 storm sewer in New York City's Borough of Queens, the inspecting party encountered an Allis-Chalmers diesel tractor helping to grade out one of the sewer junction points.

In the front seat of the jeep are James A. Burke, Borough President (left), and Roger Sullivan, Borough Engineer. In the back seat are William Raisch, consulting engineer (left), and William Bertram, Sewer Engineer for the Borough.

At this particular point the sewer consists of three barrels, each measuring 16 feet by 10 feet. The excavation is at a point where the sewer makes a junction with Oak Avenue. The sewer is part of construction that is making new lands in Queens open for new housing. The sewer project drains 6,300 acres of land. The inspection tour is probably the first time that a sewer has been inspected by a jeep.

ELIMINATE DELAYED ALARMS!

PROTECT PRODUCTIVE CAPACITY...



GAMEWELL FIRE ALARM BOXES

Adequately distributed throughout the city — one at every fire hazard — provide the means for eliminating Delayed Alarms and consequent fire waste — their service record explains why Cities Prefer Gamewell.

History's pages are lighted by conflagrations destroying cities and industries — and retarding progress. Now — with the entire world depending upon American industry to rebuild war ravaged areas our fire losses were never greater nor the consequences of fire more far reaching.

Fire consumes physical values — *delay in calling the Fire Department not only accelerates the burning rate of physical values but is responsible for the destruction of productive capacity.*

We invite your inquiry.

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Public Safety

Milwaukee's "Five Alarm" System and New Fire Trucks

By EDWARD E. WISCHER
Chief Engineer, Fire Department
Milwaukee 3, Wisconsin

INSTALLED in 1863, Milwaukee's original three-alarm telegraph system had remained in service for nearly 80 years when the present Five Alarm System went into action on August 1, 1947.

Despite Milwaukee's leading position in manufacturing, the fire department was able to maintain a good record in combatting fires with the Three Alarm System. This system, nevertheless, had shortcomings, and the multiple alarm systems in other communities were studied. Two years after my appointment as chief, in July, 1945, the Five Alarm System was installed.

Under the new system, the fire department can have 15 engines, 6 ladder trucks, 1 rescue squad, 7 chief officers at work at a 5th alarm fire, while the community will still have the same amount of fire equipment available for its protection as before. This is possible by having the off platoons return to duty and man reserve equipment.

The multiple alarm system also helps to relieve some of the burdens cast upon the alarm telegraph bureau during a large fire. Any mechanical or automatic help given to the operators gives them additional time to take any other alarms or calls coming in during such periods.

For the Five Alarm System to work with greatest efficiency, each member of the department must have a telephone in his home, so that he may be called to return to duty. The Wisconsin Telephone Company cooperated in this program and has placed the fire fighting profession on its list of preferential activities for telephone service.

Fire apparatus delivered in 1947-1948, and on order, comprised:

three 1250-gpm and one 750-gpm pumping engines, one 100-foot aerial ladder truck, two 85-foot aerials, three 75-foot 6-wheel and two 75-foot 4-wheel aerials, of Peter Pirsch & Sons Co.

four 1,000-gpm and five 750-gpm pumping engines by Mack International Motor Truck Corp.

one 750-gpm pumping engine of The Four-Wheel Drive Auto Co. with body by Milwaukee Metal Products Div., on 4-wheel-drive rescue car with body by H. Barkow, on 4-wheel-drive wrecking truck

two Sno-mobiles of Allis-Chalmers Co.

one Cadillac ambulance

one 10,000-gpm 100-foot diesel fireboat by Defoe, Inc.

Stopped Police-Fire Radio Interference

ALL at once interference developed between our Fire and Police Department radio transmitters. For instance, when the police transmitter on 154.650 mc was turned on, it splashed in on Fire Department receivers operating on 153.770 mc, and vice versa.

This condition did not exist prior to the commencement of broadcasting by WRFD on 880 kc. This frequency is the exact difference between the fire and police frequencies. All three city transmitters operate from the same tower.

After trying unsuccessfully to do the complete job with one Motorola "cavity resonator," we installed two of the units with 0.05 D.B. loops in the transmitter circuit of both Fire and Police Departments, and they work remarkably well. These cavities have been operating in an unattended building 10 miles from dispatching headquarters, in combination with other Motorola equipment, where they are subjected to temperature changes of from -6° to $+70^\circ$ C. There is no change in transmitter tuning or receiver selectivity.

H. W. SWEPSTON
Chief Radio Technician
Columbus, Ohio

Highland Park Rescue Squad

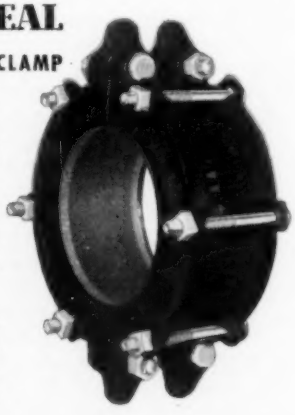
Directed by Chief Frank Ford, the five-man crew of the new Highland Park, Mich., rescue squad car demonstrates resuscitation methods to firemen from all parts of Michigan attending the summer session of the "Fire College" conducted by the University of Michigan at Ann Arbor. A feature of the truck is a Bean pump which provides 60 gallons per minute in the form of pressure fog. Pressure at the nozzle is 60 pounds per square inch with the truck engine operating at the low rate of 1250 rpm. Equipment includes smoke masks, salvage covers, and first-aid kits. The enclosed body, offering maximum protection to equipment, is mounted on a heavy duty Ford truck chassis.

THE BELL AND SPIGOT CLAMP WITH THE SEALED GASKET

SKINNER-SEAL Bell Joint Clamps stop bell and spigot joint leaks under pressure. Speedy one-man installation cuts repair costs.

Gasket is completely SEALED and protected; at the bell face by a Monel Metal Seal Band; at the spigot by hard, vulcanized gasket tip, acting as a plug. Equalized pressure forces gasket into every crevice in the joint, sealing the leak at its source. Sturdy malleable iron Compression and Anchor Rings — shaped and pressure-tested before shipping. Large ¾" high-tensile steel bolts, cadmium plated.

SKINNER-SEAL
SPLIT COUPLING CLAMP



For repairing broken cast iron mains. Gasket SEALED by Monel Metal Band at top, by hard vulcanized tip at sides, by Brass Band at break itself.

FOR REPAIRING BROKEN CAST IRON MAINS

M. B. SKINNER CO., SOUTH BEND 21, IND.

SKINNER-SEAL BELL JOINT CLAMP

Street Construction & Maintenance

How Street Improvements Should Be Financed

THE apportioning of payment for city street improvements depends primarily on the essentiality of the project—what it means to the city and the general public. So reasoned W. L. Chilcote, Deputy Highways Engineer of the Baltimore, Md., Department of Public Works. Mr. Chilcote gave his arguments before the Municipal Division of the American Road Builders' Association Annual Convention held recently in Chicago. He presented it as Chairman of the Committee on Property Assessments. For illustration purposes he classified improvements into these categories:

MAJOR IMPROVEMENTS. — Expressways, arterial highways, circumferential highways, main thoroughfares, and their associated bridges, grade separations, and drainage facilities, are capital facilities. These projects are assets to the city and are for the general service, safety, and convenience of the public at large. Consequently they should not be financed by assessments against the abutting property owners.

MINOR IMPROVEMENTS. — Usually, residential streets are originally constructed by the builders who develop the area, and at least half, if not all, of the cost of this paving is borne by the builder and included in the selling price of the individual properties.

In areas where the developer neglected to improve the street, the paving or repaving work is done by the city at the expense of the respective property owners. The residents are the chief beneficiaries and therefore should bear the greatest proportion of the expense. Generally the work is done on petition, with the cost levied on an abutting-foot basis.

ALLEYS.—An alley is for the health, safety, and convenience of the individual property owners; therefore all alley paving work is done at the expense of the builder-developer in new areas, and at the expense of the property owners in all other instances. The work is done in accordance with city standards, including drainage, and paid for on an abutting - property - assessment basis, whether the alley is paved, repaved, reconstructed, or repaired. There is no reason why the general public should absorb this obligation.

FOOTWAYS.—In almost every city footways are constructed, reconstructed, maintained, and repaired by and at the expense of the property owners. It is doubtful if any city could absorb the cost of footway installation and maintenance without seriously upsetting their tax revenue system.

GENERAL MAINTENANCE.—This is a public obligation. The expense involved should be taken from the general tax fund and should not be assessed against the property owners.

Alexandria's Paving Bee

PHOTO COURTESY OF BILL JAMIESON, MUNCIE, IND.

In Alexandria, Ind., the townspeople turn out to volunteer their services for a "paving bee" in order to keep down the cost of repairs to their streets.

THERE were $20,000 worth of street improvements needed in Alexandria, Ind., according to the lowest bid of competent paving contractors. And there was $3,000 in the city treasury to do the job. To stretch this $3,000 over the $20,000 project required the participation of 600 public-spirited volunteers.

Alexandria's streets were in bad shape after a long hard winter and a late rainy spring. To repair them without unbalancing the town budget, Mayor Guy Lewis, and the Alexandria Better Business Association, led by auto-dealer Ray Miller, organized a one-day "town paving bee."

Taking advantage of a Wednesday half-holiday, the town closed up during the morning, and 600 volunteers came to the City Hall bringing their own rakes, brooms, and shovels. The $3,000 went to buy asphalt patching material produced by a nearby local company. Neighboring towns lent graders and rollers.

Every 10 minutes a truck of repair material reported to the city hall where Mayor Lewis, Undertaker Jack Davis, or furniture-store-owner W. D. Cotterman would direct it to the proper street. At noon buses picked up the workers, taking them to the local high school for a typical Hoosier pitch-in dinner provided by the Elks, the Eagles and a local grocery store. After an hour off the men were back repairing streets, tamping down the crushed stone and filling up the holes. After 14 hours of hard work they had the job finished.

HAVE YOUR AIRPORT LIGHTING Engineered by L-M Airport Specialist

When you buy airport lighting from Line Material, you buy an **engineered lighting system.** Equipment is designed by airport lighting engineers. Your installation is planned by airport lighting engineers. And that is true for any size airport—large or small.

Line Material has been in the airport lighting business for many years. L-M-Bartow units were the first successful high-intensity elevated runway lights—and they were designed as a **lighting system.** During the war these systems were installed and successfully used throughout the world. Today, improved L-M-Bartow units with four times more beam candle-power plus a movable beam are in successful operation at many commercial airports.

For smaller airports, L-M offers specialized equipment, available as a lighting "package" costing as little as $1 per foot of runway. This equipment is CAA-approved, and has the same careful engineering, the same knowledge behind it, as the larger L-M-Bartow units.

Get the details on this airport lighting engineering and equipment. **Write Line Material Company, Airport Lighting Division, E. Stroudsburg, Pennsylvania.**

Write for the Literature You Want

"Open all Night" describes lighting for smaller airports. **"L-M Rotating Beacon** for Class 1, 2, and 3 airports"—details of this economical, weatherproof beacon.
"L-M-Bartow Rotating Beacon"—description and specifications of the large 36" beacon.
"The Lights that Bring Them In" is a handsome technical brochure for large airports describing the basic requirements of runway lighting; what the pilot must see in approach and landing; the principle of L-M-Bartow Beam Control. Charts, diagrams, explanatory text.
Also available: engineering data sheets, specifications, wiring diagrams, and a simple estimating sheet for smaller airports. **Write for the literature you would like to see. Address Line Material Company, Airport Lighting Division, East Stroudsburg, Pennsylvania.**

1. L-M Medium-Intensity Elevated Runway Lights—for smaller airports and for secondary runways and taxiways at largest fields. Three brightness stages. Various mountings available.

2. L-M-Bartow High-Intensity Elevated Runway Lights: both fixed and movable beam types, 200 and 500 watts, the latter giving up to 200,000 beam candlepower.

3. L-M Power and Control Units: Several types; provide brightness control, simple beam focusing switch, beacon switch, indicator lights, transformer, circuit breakers, fuses, etc.

4. L-M Rotating Beacon for Class 1, 2, and 3 airports. Light, efficient, completely sealed, with no external moving parts. White and green beams plus ceiling height indicator. Up to 400,000 beam candlepower. **L-M-Bartow** 36" Rotating Beacon for class 3 to 7 airports: Two 24" bulls-eye lenses for main beam, clear, or in colors as required; 80-degree sweep beams. **Both beacons** have automatic switching to spare lamps, and telltale indicator on control panel if lamp burns out.

5. Marker and Obstruction Lights: has many features of the medium-intensity elevated runway lights, permitting economical parts interchange. With or without transformer and mounting bracket; red fresnel lens.

6. Other Equipment: Transformers, fuse cutouts, cable and all other electrical equipment required, including L-M's ingenious cable splice kit which greatly simplifies splicing of two, three, or four cables. Complete Airport Lighting Engineering Service.

LINE MATERIAL Airport Lighting

Airports and Aviation

Airport Construction Program in High Gear

THE Federal Airport program is solidly under way and progressing at an accelerated rate. A survey by the Airport Division, American Road Builders' Association, Washington, D. C., shows an increase during June of more than 60 locations from which project applications have been received. The total number of locations stood at 323 at the end of May. The number received in June represents more than 20% of the locations received during the first 17 months since the program got underway.

States that have aggressively gone out after airport funds have apparently benefited. California's apportionment of $2,726,000 is in excess of funds ($2,085,000) allocated from the Administrator's Discretionary Fund. Illinois received nearly 50% more from the discretionary fund than from its ordinary apportionment, based on area and population. Idaho, Maryland, Missouri, New York, Pennsylvania, Tennessee, Washington, and several other states also fared well in securing tentative allocations from the Administrator's Discretionary Fund.

How Aviation Rules Are Administered

THIRTY-ONE states have special commissions and nine have departments to regulate aviation; 11 have special aviation police, and in 41 states laws have been passed designed to foster civil aviation, according to T. P. Wright, Administrator of Civil Aeronautics.

The aviation laws in the various states follow, in the main, the Model Aviation Act, which was prepared after conference between federal and state officials.

Thirty-two states use state police; 32 use county forces, and 33 utilize municipal departments in aviation safety-enforcement activities. In some states authority is merged so as to include all. In 25 states drunken flying is specifically covered by statute.

In 46 states federal certification of aircraft and airmen is required and only two have no specific laws on this phase in line with the Model Act—Iowa and Virginia.

The Model Act which was drafted in 1944 and revised two years later is calculated to establish harmony of operation and action between the states and the Federal Government. It is pointed out by the CAA General Counsel's Office that these regulations, relating to safe flying and the provisions outlined for the development of airports, will insure united action by national and local authorities. An auspicious start in this direction has been made as a result of the series of negotiations which laid the ground work for the Model Act.

Thirty states have passed laws on airport zoning after the Model Act. All but five tax aviation gasoline, either directly or, more commonly, under a motor-fuel tax. In three, the levy is 7 cents or more a gallon—Louisiana, Oklahoma, and Tennessee. The latter uses the revenue for aeronautical purposes. Missouri's tax, 2 cents, is the lowest of all, although Florida exempts motor fuel testing 78 octane or higher, for exclusive use in aircraft, and 32 states make a complete or partial refund of aviation-gas taxes to purchaser.

How Cross-Wind Landing Gear Works

STUDY and experiments on the use of cross-wind landing gear by the Civil Aeronautics Administration have led to definite conclusions that should influence the future use of airports. These conclusions are as follows:

1. Airplanes for personal use can be constructed at a reasonable increase in cost and weight to make it possible to land and take-off across the wind with the same facility and safety as into the wind.
2. There has been no indication that the principle involved can not be applied as readily to transport planes.
3. The expressed opinions of well over 200 pilots who have flown either the Fairchild or the Piper have been universally favorable and in most cases enthusiastic.
4. The number of close-in sites for the smaller airports (Classes I, II, and III) which would be opened because of the smaller landing areas and the more limited approach areas which would be required is a factor of major importance.
5. This same factor, together with aircraft-noise abatement, would bring aviation within the reach of the potential private flyer in metropolitan areas, where the largest unrealized market for personal aircraft exists.
6. The cross-wind landing gear could also bring short-haul commercial transportation to these metropolitan areas and to large cities which have a potential air-transport market which, to date, has scarcely been touched.
7. Adoption of cross-wind landing gears would reduce the pilot skill required for take-off and landing and, hence, would shorten pilot training time.
8. Adoption of cross-wind landing gears would materially reduce the number of landing accidents.

The study is based on investigations using two personal-type planes: the Fairchild PT-19 and the Piper J-3. Later reports will be issued to cover modifications of the Ercoup, the Ballance Cruisair, the Beech AT-7, and the Douglas DC-3.

This landing view of a Piper Cub's cross-wind landing gear clearly shows the 25-degree caster when wheels strike the runway in the "crab" landing.

"More than 1,000 yards a day
Week after week...
with one operator"

Barber-Greene

545-A Bucket Loader

That's the kind of big-yardage performance you can expect from the B-G Model 545-A Bucket Loader. This pneumatic-tired, heavy-duty 3 cu. yd. per minute machine is built to move high tonnages at low cost. Its two or four-wheel drive, with wheels individually braked, means excellent maneuvering in close quarters, steady crowding into stock piles — and quick withdrawal. Synchronized Spiral Feed keeps buckets full; Automatic Overload Release protects machine. Boom lowers hydraulically to cradle to give low clearance in transport. B-G rugged design and construction mean many years of profitable service. Ask your B-G distributor about these and other B-G Loaders and Conveyors, or write Barber-Greene Company, Aurora, Illinois.

Model 522 Bucket Loader
The B-G Model 522 is a versatile pneumatic-tired Loader for those jobs that don't require the extra capacity of the 545-A. Provided with High Boom and Swivel Spout or Low Boom and Swivel Conveyor.

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Constant flow Equipment

LOADERS PERMANENT CONVEYORS PORTABLE CONVEYORS COAL MACHINES BITUMINOUS PLANTS FINISHERS DITCHERS

SEPTEMBER 1948

Volume XLIII No. 9

The American City

World's Largest Covered Prestressed Tank

Rockford, Ill., breaks a record with its new 5-mg concrete water reservoir

By H. S. MERZ
Water Superintendent

MORE than 180 miles of piano wire carefully stressed to a predetermined loading are embedded in the new 5-mg reservoir serving Rockford, Ill. Part of a half-million-dollar water-improvement program, the domed-roof-covered, wire-wound, prestressed-concrete reservoir is the largest in the world. Design and engineering were handled directly by the writer. Its general dimensions are as follows:

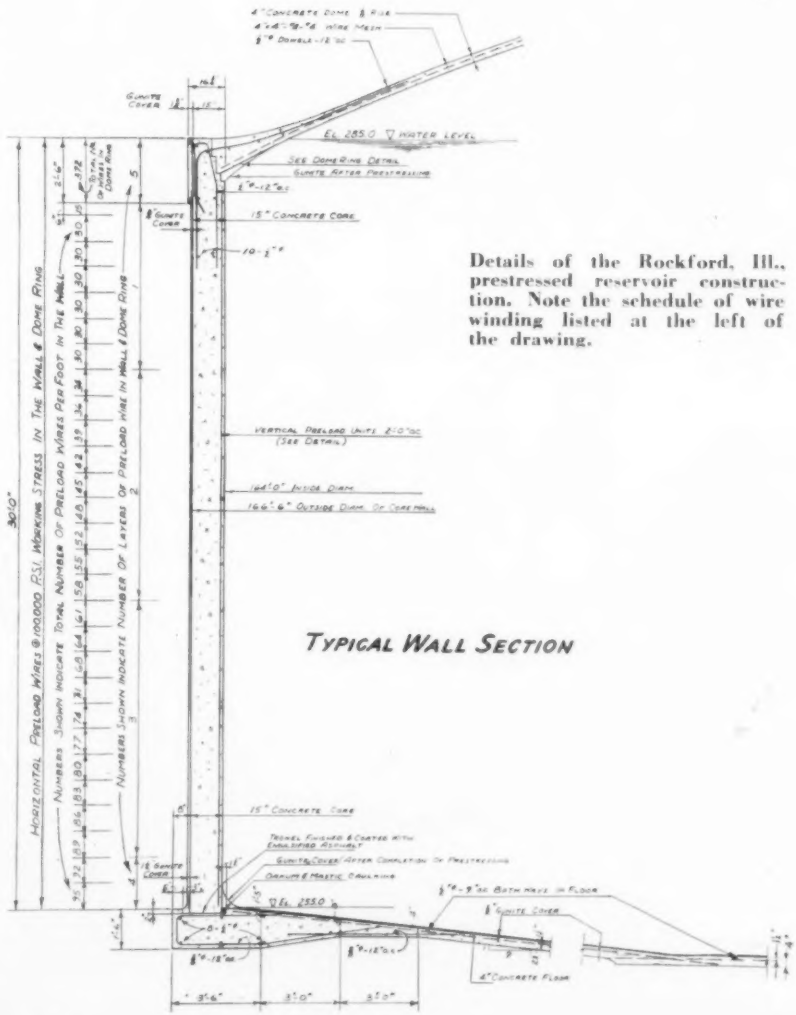
Capacity—5 mg.
Outside diameter—167 ft.
Side-wall height—30 ft.
Side-wall thickness—15 in. plain concrete gunited to 18 in. after wire prestressing.
Dome roof rise above water line—19 ft. 3 in.
Concrete—1,600 cu. yds.
Horizontal prestressed steel 180 miles No. 8 wire.

The general contractor was The Preload Corporation of Kansas City and New York, pioneer in the design and construction of prestressed concrete structures, having built some 500 prestressed concrete tanks and reservoirs for water, sewage, chemicals, and other types of service. The subcontractor on this project was The Jack Construction Company, of Kansas City, a slipform specialist.

Concrete Poured Continuously

One of the interesting features of the construction of this reservoir was the construction of the side walls, 525 feet in circumference, by the slipform method. The slipforms were 5 feet high with jacking yokes approximately 20 feet apart, under which 1-inch jack rods were placed. After the forms and the mixing and distributing plants were set up, the entire wall was continuously poured in 75 hours.

Another interesting phase was the construction of the 167-foot-diameter


4" CONCRETE DOME & FILL
GUNITE COVER
EL. 2850 ▽ WATER LEVEL
SEE DOME-RING DETAIL
GUNITE AFTER PRESTRESSING
15" CONCRETE CORE
VERTICAL PRELOAD UNITS 2'-0" oc
(SEE DETAIL)
166'-0" INSIDE DIAM.
166'-6" OUTSIDE DIAM. OF CORE WALL
15" CONCRETE FLOOR
TROWEL FINISHED & COATED WITH
EMULSIFIED ASPHALT
GUNITE COVER AFTER COMPLETION OF PRESTRESSING
EL. 2550
4" CONCRETE FLOOR
HORIZONTAL PRELOAD WIRES @ 100,000 PSI WORKING STRESS IN THE WALL & DOME RING
NUMBERS SHOWN INDICATE TOTAL NUMBER OF PRELOAD WIRES PER FOOT IN THE WALL
NUMBERS SHOWN INDICATE NUMBER OF LAYERS OF PRELOAD WIRE IN WALL & DOME RING

Details of the Rockford, Ill., prestressed reservoir construction. Note the schedule of wire winding listed at the left of the drawing.

TYPICAL WALL SECTION

concrete dome roof unsupported by columns. After the walls were completed, the vertical uprights and dome forms were constructed inside the tank. Steel reinforcing bar dowels that projected from the top of the walls were bent to ties into the dome and the double reinforcing bar steel, wired in place on the dome forms. The concrete was poured onto the dome forms by the use of a series of concrete buggies and runways. The dome is supported solely by a prestressed dome ring and the walls. The dome ring is in effect a circular beam which forms part of the top of the wall. The dome ring is 2 feet 6 inches deep, and around it are wound 372 strands of wire in five layers with gunite covering between each of the layers and a heavier gunite coating over the last layer of wire.

Prestressing Lifted Dome

The wire is wrapped on both the tank and the dome ring by a Preloading (prestressing) mechanism, as shown in the photograph. The 8-gauge wire has an ultimate strength of about 225,000 psi. It has an initial diameter of 0.162 square inches and is drawn through the prestressing mechanism to a diameter of 0.142, with an initial tensile stress on the tank walls and ring of 140,000 psi. That high initial stress is sufficient to take care of wire creep and shrinkage and plastic flow in the concrete and still leave a sufficient amount of prestressing in the concrete to keep it permanently in compression both before and after the tank is filled. The high initial stress in the five layers of dome ring wire was sufficient to raise this large concrete dome (23,000 square feet, or ½ acre) approximately 2 inches off the dome forms. This was evidence that the horizontal thrust of the dome was more than compensated for by the dome-ring prestressing. The dome forms were then removed, leaving the dome unsupported internally. The dome itself, being a rigid inverted saucer, is now completely in compression and therefore a permanent and stable structure.

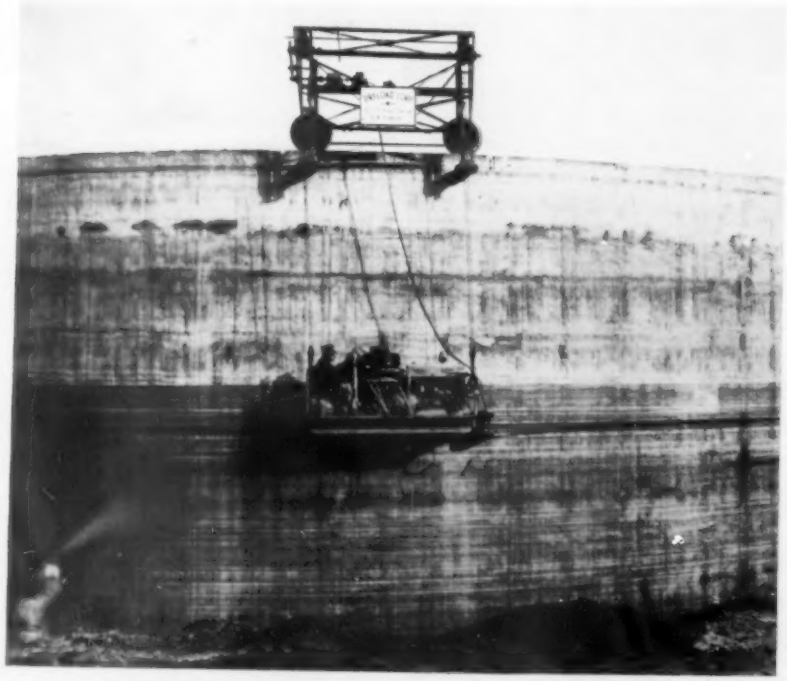
The walls are subjected to both vertical and horizontal prestressing. The vertical prestressing is accomplished by the use of loop anchors placed at top and bottom of the tank walls and connected by a set of double-harness steel rods with a diameter of 0.31 square inch, each connected to the anchor loops by means of heavy threads and turnbuckles. The vertical prestressing is placed on 2-foot centers and subjected to an initial stress of 70,000 psi. These 260 double-harness vertical-prestressing units are placed in slots left in the wall by the wall forms and are placed and stressed after the wall is completed. The vertical-unit slots are then filled with gunite and the entire interior wall given a gunite flash coat. The vertical prestressing on the inner wall places a horizontal bending moment in the outer surface of the wall. That moment is later counteracted by the external wire winding as illustrated. One layer of wire was placed from the bottom all the way up to the dome ring, and gunite cover-coated. A second layer was placed approximately two-thirds the height of the wall from the bottom and gunite-coated, and a third layer was placed one-third the height of the wall from the bottom and finally given a heavy gunite cover-coat. The 180 miles of wire wound around the dome ring and the walls of the tank were sufficient to move the entire wall inward on its sliding base, thus preventing high bending moments in the wall itself.

Sliding Joints

The sliding joint under the wall is of some interest. The top of the circular foundation is given a true horizontal trowel finish and coated with an emulsified asphalt. A recess in the top of the foundation provides a slot between the foundation and the inside of the wall. That slot is caulked with oakum and filled with a permanently pliable mastic material after prestressing and shrinkage has taken place, thus insuring a permanent water seal. After the tank is completed, a gunite cover is shot in place over the mastic joint, tying the floor into the wall, as shown in the line drawing.

The economy of prestressed-concrete structures is apparent when comparative quantity estimates of conventional and prestressed designs are made. Present reports indicate that prestressing effects a saving of approximately 25 to 50% of the amount of concrete and 75 to 85% of the amount of steel, depending upon the height-diameter ratio. The high-tensile wire, completely bonded and adequately covered, keeps the tank walls permanently in compression, thereby assuring against cracking and leakage.

The cost of the tank, excluding excavation and backfill, ran to 2.75 cents per gallon of storage capacity.



A wire-winding machine operating on the 5-mg reservoir.

Garden Cities Jubilee —U. S. Planners Invited

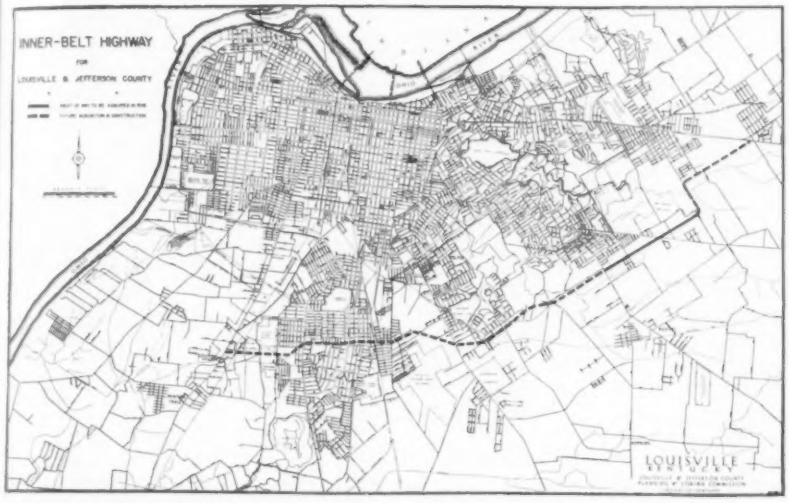
THE fiftieth anniversary jubilee of Ebenezer Howard's book *Garden Cities of Tomorrow* is to be celebrated at a dinner in London on October 6, sponsored by the British Town and Country Planning Association, originally known as the Garden City Association.

Howard's book, which has wielded an enormous world-wide influence on planning, was first published as *Tomorrow* in October, 1898. The Garden City Association, which later promoted the building of Letchworth and Welwyn, was formed the following year.

U. S. planners who expect to be in London at the time should write to the Association at 28 King Street, Covent Garden, W.C. 2, Great Britain, for invitations to the dinner.

Action on Louisville's Inner-Belt Highway

By ROBERT S. RUSSELL
Director of Planning
Louisville and Jefferson County
Planning and Zoning Commission



The Inner-Belt Highway Plan. The unbroken line shows the right of way to be acquired in 1948, and the broken line future acquisition and construction.

THE first major post-war highway project for Louisville and Jefferson County* became a reality on July 6 of this year when acquisition was started on the right-of-way for a section of the new Inner-Belt highway. This road will serve as a by-pass to the city, connecting the Dixie Highway (U. S. 60 and 31-W), to the south and southwest, with the Shelbyville Road (U. S. 60) to the east. In addition to serving as a by-pass route the Inner-Belt will be a major connecting road for Standiford Airport and for the new residential communities which are spreading from Louisville in virtually every direction.

This highway is to become a part of the Federal Road System and is being built with major financing by federal and state highway agencies. The County and City are paying one-third of the cost of the right-of-way in their respective areas. This right-of-way will be 180 feet in width wherever possible, and the design calls for divided two-lane roads with limited access from abutting properties. First construction will, however, consist of one roadway only; the second will be built later when use necessitates it. This first section of 2.4 miles extends from the Bardstown Road (U. S. 31-E and 150) northeasterly to Breckenridge Lane, a secondary thoroughfare which connects with Suburban St. Matthews. Construction of this section is expected to begin in late '48 and completion of the entire route is anticipated in approximately four years.

Most of the route lies in the unincorporated area of Jefferson County with a portion to the west passing through a part of Louisville. In the Louisville section several blocks of existing streets will be used, and a major overpass across the Louisville and Nashville Railroad tracks will also be utilized. It is expected that the width of right-of-way and the limitation of access will have to be modified through the City. The western terminus of the Inner-Belt, at the Dixie Highway, lies in the incorporated city of Shively.

The Inner-Belt has figured largely in the planning program for Louisville and Jefferson County. The idea of such a highway was originally discussed in '43 by the State Highway Department, the Public Roads Administration, the City Public Works and the County Road Departments, the Planning and Zoning Commission, and the Louisville Area Development Association. After further study, it gave every indication of being a sound project and was officially adopted on the Master Plan of Jefferson County in July '46. Revisions were made in the spring of '47 to permit greater use of the limited access feature. Then two things happened which threatened the existence of this highway. First was the postponment of action on it until after the fall elections of '47 which resulted in a change in the political character of the State Highway Department. The second was the mounting indignation of several developers who wished to subdivide across the proposed route and threatened to bring mandamus action in court to remove the highway from the Master Plan.

Agreement Reached

The first barrier was cleared when the new State Highway Commissioner, G. L. Withers, agreed to the Inner-Belt as Louisville's share of the augmented highway fund. With the developers, a meeting of legal minds was accomplished. In a somewhat unusual document, a contract was arranged between the developers and the Planning and Zoning Commission by which the subdivision plats were approved and recorded with the condition that sale or improvement of lots and dedication of streets within the proposed right-of-way would not occur before October 1 of this year. This gave a period of grace of more than six months for action on the highway.

Now that acquisition of this right-of-way is started, Louisville and Jefferson County will be assured of a needed first-class highway, and the planners may breathe easier.

* Although Kentucky recently raised the state gasoline tax from 5 to 7 cents, most of these funds are being earmarked for construction in rural areas.

Competitive Bidding on Public-Requirement Contracts

By NELSON ROSENBAUM
Former Assistant Corporation Counsel
New York, N. Y.

COMPETITIVE bidding is the open and public negotiation of public contracts on definite specifications with a defined criterion for determining the award of such contracts, so that there will be equality and competition among the bidders, which will prevent waste of public funds and safeguard awarding officials from corruption and charges of favoritism.

Our purpose is to examine requirement contracts awarded at competitive bidding to ascertain whether they meet the intended purposes of this restricted form of purchasing: namely, prevent waste of taxpayers' money, provide for equality among bidders, prevent favoritism and corruption, and protect awarding officials from unjust charges.

What Is a Requirement Contract?

A requirement contract obligates the buyer to order from the seller all of the buyer's needs of the specified item during the contract period, with the seller compelled to deliver to the buyer such needed quantity. The outstanding feature of this type of contract is that the quantities are not fixed and are indefinite, with the needs of the buyer determining the quantities to be ordered and delivered under the contract.

Requirement contracts have found favor in public procurement largely because of their ease in administration, and the elimination of much paper work, plus the saving of time. Instead of separate individual contracts during a year or any given period, only one requirement contract is made for the needs of the prescribed period. This eliminates successive preparation of proposals, advertising for bids, receipt of bids, and awards of contracts—the incidents of competitive bidding.

For certain types of supplies, the requirement contract is admirably suited, and little complaint can usually be made against its use in public procurement, if administered in good faith. These supplies are those of daily demand and consumption, without which the wheels of government or any business organization could not function, such as fuel, oil, coal, steam, ice, electricity, illuminating gas, or any other item of a public-utility nature.

There are certain legal essentials which make for a valid requirement contract. Their absence results in an invalid and unenforceable contract. Care must be exercised in the drafting of these requirement contracts, and competent legal advice should be obtained. A contract which purports to be a requirement contract is not valid if the quantity to be ordered under it is determined by the whim, desire, or want of a person. In drawing public-requirement contracts, avoid language which states that the quantity to be ordered is dependent upon the subjective act of some public officials; e.g., such supplies as the commissioner may determine is needed. This provision in a requirement contract makes it invalid, which nevertheless will be recognized only so far as it has been performed, or to the extent that orders are accepted by the vendor. Such an invalid contract is embarrassing, when in a rising market the seller refuses to accept further orders, leaving the public agency unable to recover of the seller the increased cost.

A valid and binding requirement contract should be worded so that the public agency must buy the quantity of the specified item it needs during a definite period only from the vendor, with the vendor agreeing to deliver this needed quantity during the contract period. The need for the quantity can be measured on any consuming basis, such as a building, a unit or units of government, or any other standard found suitable, as long as the need can be identified and measured with and by the consuming unit. Two or more simultaneous requirement contracts covering the same contract time for the same item will result in both contracts' being invalid. The reason for this is that the legal basis of a requirement contract is absent, that the buyer take his needed quantity during the stipulated time from one single source. Two simultaneous-requirement contracts are each in effect "whim," "wish," or "want" contracts which are invalid, because the buyer can buy under either of them as he desires.

Another consideration that may affect public-requirement contracts is any statutory prohibition against their use. If the statute or regulations having the force of law relating to competitive bidding call for definite stated quantities of the items to be purchased, the use of the requirement contract is likely to be held illegal. It is a wise and sensible precaution for public buyers, before using requirement contracts, to make certain that there are no legal obstacles to their use.

Objections to Public-Requirement Contracts

Certain objections can be urged against the use of public-requirement contracts let at competitive bidding.

The first of these is that a requirement contract does not obligate the public agency to buy any fixed or definite quantity, so that the benefit of discounts or savings that go with quantity purchasing is lost. This objection can be partially obviated if the requirement contract obligates the public agency to order a stated minimum quantity. If this is not done, some students of public procurement contend that the prices quoted on requirement contracts are of the highest, unless the prospective bidder knows the quantities that are likely to be purchased from past contracts.

This leads us to the second objection: that the quantity to be purchased can be learned only from past experience which previous contractors have, and consequently new bidders refrain from bidding on this type of contract, with lessened competition and resultant higher prices.

The third objection is that after the award of the requirement contract the successful bidder, through supersalesmanship and promotion exerted on the using agencies, can create "need" for his commodities. This objection becomes more serious when the requirement contract contains unbalanced prices in favor of the contractor. With the unbalanced prices assuring the contractor higher profits, there is great incentive for him to promote demand for the unbalanced items in the public agency. Awards of requirement contracts with unbalanced prices in favor of the contractor should be avoided.

The fourth objection is the possibility of favoritism to the contractor. Near the end of the fiscal year, there is in some public agencies a good deal of scurrying around to spend unencumbered funds which would otherwise be used for the reduction of taxes. A requirement contract is a quick and easy source for the disposal of these unencumbered funds, which can be done without knowledge to the taxpayer,

since there is no need to advertise for new contracts. Under these conditions, a contractor with favorable prices in his requirement contract may use influence and pressure for the issuance of orders for the delivery of supplies not needed.

The fifth objection that can be urged is that some public agencies, because of the lower prices in these requirement contracts as compared with the existing market prices, issue orders for deliveries when there is no present need for the supplies. The legal complications of this situation will be discussed later.

Decisions on Requirement Contracts

Public-requirement contracts under competitive bidding have been sustained, but in none of these cases was it shown that they were prohibited by the law calling for competitive bidding.

Most of the litigation concerning public-requirement contracts arose on coal contracts. In one case, the quantity of bituminous coal ordered on the requirement contract was greatly increased. This was due to the public agency's switching from both bituminous and anthracite to bituminous burners only. The contractor protested against delivering this increased quantity of bituminous coal at the contract price, the market price having jumped considerably. The public agency directed the contractor to deliver all the bituminous coal it required at the contract price. The contractor was paid the contract price but sued to recover the market price on the excess bituminous coal less the amount paid. He succeeded in his suit. The holding of this case is that arbitrary changes in the operations of a public agency, not contemplated by and at the time the requirement contract is made, do not obligate the contractor to furnish at the contract price the additional supplies ordered because of such uncontemplated change.

Another view of this case leads to the conclusion that an uncontemplated change in a public agency's operations which decreases the usual required quantity would entitle the contractor to his profit on the unordered quantity.

The time when supplies may be ordered on a public-requirement contract is, of course, important. On another coal-requirement contract to supply the needs of several departments of a city during a stated period covering many months, it was said that it would be unreasonable for the city to order during the first month of the contract all the coal needed during the full contract time. The ordering of only one month's supply in advance, even in spite of a threatened coal strike, was considered proper.

The demand for supplies upon a requirement contract is contingent upon their being currently needed. Stocking up in advance of needs may lead to difficulties. If the prognosis of anticipated needs within the contract period is not realized, can not the contractor claim that his contract was breached and that he is entitled to the market price, if higher, of the unneeded delivered commodities? Requirement contractors who have refused to make deliveries not needed at the time of the order have been sustained, particularly when the contract is about to expire. I have previously indicated that an objection to these requirement contracts is the calling for supplies because of the advantageous lower contract price, though not needed. If this is done, good faith in the public agency is missing. If the proof shows that there was no actual existing need for the ordered item, equity and good conscience dictate that the contractor should receive the market price of the commodity he delivered. Requirement contracts cannot be used to destroy vendors.

In the reported cases which have sustained requirement contracts, the basic idea on which they have been upheld is that both parties must exercise the utmost good faith toward one another in the performance of the contract. Ordering supplies when not needed, especially when the buyer's need for them cannot be known by the seller, is a form of over-reaching. This is also true when a public agency orders supplies for branches of government not within the purview of a requirement contract. Courts do not deal lightly with those who act in bad faith. Consequently, those in public agencies who order supplies on requirement contracts when not needed, because of favorable contract prices or for a unit of government not contemplated by the contract, may find they have purchased a boomerang when the public agency is forced by the courts to pay the higher market prices.

Conclusions

The proponents of fixed-quantity contracts in public procurement argue that these objections against requirement contracts do not exist on fixed-quantity contracts and outweigh any advantage that comes from the use of requirement contracts in public purchasing.

The vital question to be determined, however, is whether requirement contracts let at public bidding dissipate benefits the public should receive from competitive bidding. If investigation of public-requirement contracts reveals that they are a medium which destroys the advantages that are expected from competitive bidding, it will not be long before our federal and state legislatures will prohibit their use in public purchasing.

From an address before the National Academy for Public Purchasing (a training school sponsored by the Bureau of Federal Supply, Treasury Department, for public-procurement officers), Washington, D. C., April 7, 1948.

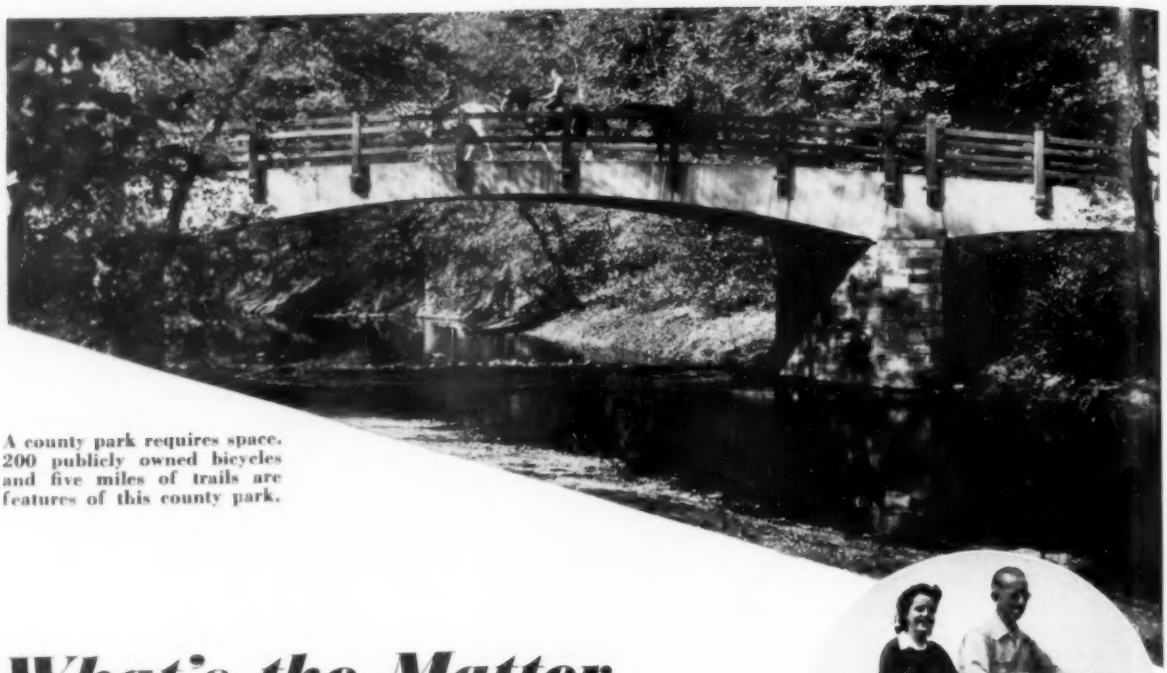
The Municipal Bond Market

THE customary midsummer lull in the municipal bond market failed to materialize this year. There was little decline in the number of new bond offerings in July, and the volume of new state and municipal borrowings, as reported by *The Bond Buyer*, reached $242,199,720, probably an all-time high for this month of the year. Offerings were fewer in number in August but the volume continued heavy, raising the total for 1948 to well above the $2,000,000,000 level.

One August bond issue must have established some kind of new record. Hempstead Common School District No. 5, Nassau County, N. Y., was faring comfortably in 1947 with a three-room school house for its 450 residents. In 1948, with the district's rural acres in rapid conversion to modern suburban home sites and with the prospect of a population of 20,000 by the end of the year, some exceptional school-building expansion is needed. The fact that over 90% of the heads of families occupying the rental homes in this new unincorporated community of Levittown—so named after its builders—are young veterans, conveys some idea of the emergency. The District's offering of $2,135,000 serial bonds due in 1949-78, was in excess of the legal debt limit and required a special dispensation from the State Department of Education. It will still provide only for immediate school needs. The question of how bond underwriters would appraise this unique situation was resolved by sale of the bonds at 100.047 for 3.40s. Levittown will have other debt problems, however, such as those involved in the need for more schools, and, sooner or later, a sewer system to replace present cesspools. While this situation has unusual features, it suggests that developing peripheral areas may be in line for heavier debt loads than their central cities.

The Bond Buyer's index of average yield of twenty 20-year municipal bonds, after declining from 2.47% in March to 2.23% in early June, reversed its trend and had risen to 2.39% by August 19. The change had its original impetus in the accumulation of an unwieldy total of unsold bonds in dealers' hands, but it was given additional momentum by the mild anti-inflationary measures enacted by Congress and the announcement by Secretary of the Treasury Snyder on August 9 that the interest rate on Treasury certificates would rise from 1⅛% to 1¼% in the next offering. The effect was more pronounced on the over-all interest cost of municipal serial offerings than on the rate for long-term bonds, because the upward adjustments centered in short-term and intermediate maturities.

FREDERICK L. BIRD
Director of Municipal Research
Dun and Bradstreet, Inc.



A county park requires space. 200 publicly owned bicycles and five miles of trails are features of this county park.

What's the Matter With County Recreation?

By TAM DEERING
Planning Consultant for Recreation and Parks
Washington, D. C.

THE provision for recreation in most of our 3,200 counties is pitiful. The combined annual appropriations for recreation by federal, state, and local governments amount to less than one-twentieth the expenditures for cigarettes and liquor and one-half the amount spent for mutuels betting. Few counties have a first-rate system for making available their resources in the satisfying, wholesome use of leisure. Yet, where integrated park systems have been created, the public has given enthusiastic response. The few examples, however, are largely confined to county systems in or near large cities, such as those of Westchester (N. Y.), Union (N. J.), Cook (Ill.), Milwaukee (Wis.), and San Diego (Calif.), or to metropolitan systems such as those of Boston, Cleveland and San Francisco.

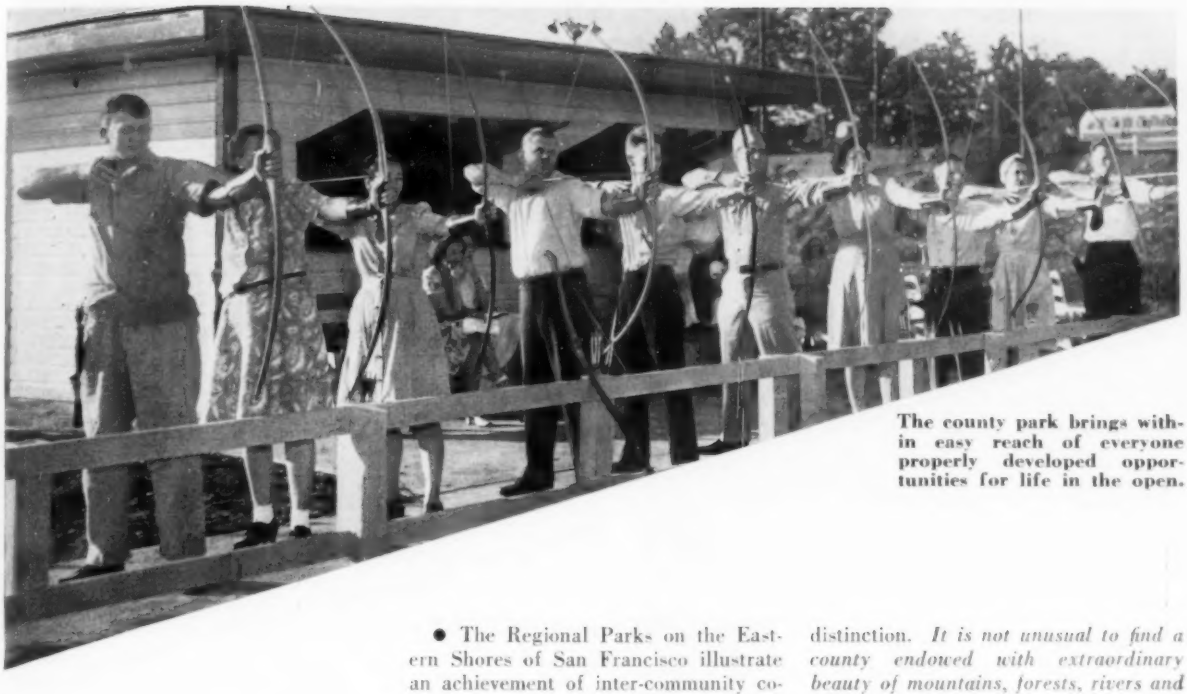
Why have local officials failed so seriously in meeting recreation needs? Lack of imagination and lack of "know-how" are two principal reasons. Streets and sewers are obvious needs and are quickly provided for in an urban community, but the intangible "vitamin" requirements of the human body, nervous system, and spirit are often overlooked. Also, when police, fire systems, and other municipal services are established, there is an abundance of experience and tried and true procedures to follow. But, when a recreation system is to be created, what county affords a pattern? Who can give expert direction?

A recreation system for one county cannot be patterned on that of any other without risk because the elements to be considered, such as areas of scenic, scientific, and historic interest, vary so greatly from one county to another. Similarly, experienced recreation leaders skilled in administration and who have the "know-how" to organize county recreation systems are few and far between. This is why the public official is often wary when a new-fangled undertaking, such as a recreation system, is discussed.

Where the landscape is uninteresting, there the task of selecting and developing the areas to be included is more difficult. There it is necessary to exercise a high degree of imagination to see in the common and monotonous the possibilities for creating unusual beauty and interest. The less nature supplies, the greater must be the art of selecting and bringing out the hidden elements. To attain excellence there must be an artistic sense and a highly constructive imagination capable of seeing what an area might become under skillful treatment. But it is not enough to discover and perfect nature's masterpieces. Abundant provision must also be made in every county system for public conveniences and the program required to meet the varied needs of individuals and groups. What steps can a county take to create a system of distinction?

Some Lessons from Past Experience

• Massachusetts affords a classic example of procedure along sound lines. In 1892 its legislature created the Board of Metropolitan Park Commissioners



The county park brings within easy reach of everyone properly developed opportunities for life in the open.

with powers and duties to meet the needs of the people of Boston and vicinity. The district included several counties, 12 cities, and 24 towns. The survey to determine what should be included in the system was under the direction of a professional planner of remarkable ability, imagination, and judgment.

● In contrast, the Cook County Forest Preserve District, serving the people of Chicago and vicinity, is an example of the disadvantages of confining the administrative unit to a single county when a vast population is to be served.

● Westchester County, N. Y., has a 17,000-acre system reaching all parts of the county with many types of areas and facilities, long stretches of shoreline drives along its small streams, and interconnecting parkways.

● The Milwaukee County Park Board has shown how ingenuity and foresight can be the means of creating much with little. On its own initiative a quarter century ago it mapped out 84 miles of watercourse parks and parkways, taking in every stream in the county that had not been vandalized, and for good measure it mapped the outlines of other suitable areas. *The land included had little or no appraised value for private use, but enormous potential value to the entire community when brought together in continuity of public ownership and given appropriate treatment.* Mapping the proposed areas was followed by suitable plantings. Finally a graphic presentation of the scheme was made to the public and the result was overwhelming approval.

● The Regional Parks on the Eastern Shores of San Francisco illustrate an achievement of inter-community cooperation. The cities of Alameda, Albany, Berkeley, Emeryville, Piedmont, Oakland, and San Leandro united under an act of the California legislature providing for the acquisition and improvement of facilities through a district board and taxes.

Smaller County Needs Are Great

In undertaking to create a county, district, or metropolitan system there is much to be learned from the best examples afforded by the large urban centers. But most of America's 3,200 counties have fewer than 200,000 people within their boundaries.

The county of small population, with no large cities within easy driving distance, and with no areas of outstanding scenic, scientific, or historic interest, has greater need in some respects than the more populous centers for a system of

The nautical enthusiasm of "inlanders" makes the sail boat contest a highly successful event in the man-made lake of a county park.

distinction. *It is not unusual to find a county endowed with extraordinary beauty of mountains, forests, rivers and lakes, presenting the phenomena of feuds, bitterness, and abnormal behavior because the people live in isolation and lack community organization for social good times together.* There, life may be filled with an unendurable boredom for those of all ages and the young people may send up the cry, "This place is dead. There's nothing to do here." The answer is to be found in highly competent leadership, an adequate program, and suitable facilities within convenient reach of every family in the county.

And in this the rural county is at no disadvantage. Its choicest areas are less likely to have been vandalized or commercialized. It can acquire the best for the least. Time may be substituted for expense as, for example, by using seedlings in the planting of areas. Skill in making use of the natural beauty of the land-scape can be the equivalent of heavy expenditures for the more formal types of improvement. The volunteer services of individuals, organizations, and communities can more readily be gotten as an offset to the cost of labor and materials. The cooperation of the people in the care of facilities can be used to balance off the cost of protective devices and replacements.

Recreation Can Pay Its Own Way

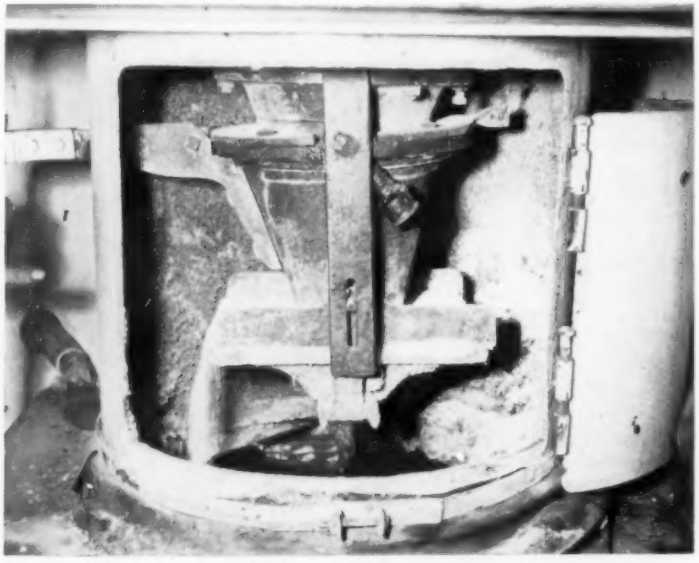
Where there is no other way, the recreation system, if well conceived and skillfully planned and managed, can be made to pay its own way. By utilizing its possibilities as a vacation resort, expenditures can be made self-liquidating. *The airplane has brought every county*

(*Continued on Page* 137)

Fremont, Ohio, finds that iron salts give good coagulation results when treating a raw water of high turbidity and varying temperatures

In this water-softening plant Mr. Schneider made his studies of coagulants.

Good Coagulation at Fremont



A close-up of the feeder applying ferric sulphate to the water.

By W. H. SCHNEIDER
Superintendent and Chemist
Fremont, Ohio

OPERATION, rather than supply, has been the main problem facing the water plant serving our city, and coagulation has been the phase of that operation that caused the trouble. We have been able to meet those problems by basing our coagulation work around the use of ferric sulphate rather than aluminum sulphate. After five years of consistent results, I believe that this meets the requirements that are characteristic of our raw water.

We contend with a very flashy water taken from the rather shallow Sandusky River. Turbidity ranges from 5 ppm to 3,000 ppm. The alkalinity, pH, and hardness follow the trend of the turbidity and makes the treatment a rather exacting problem. Other than the usual difficulties that rise in all plants, we felt that we were using the best possible treatment available and obtaining good results except during periods of high and moderate turbidities with low water temperatures.

The Fremont plant was built in 1928. Lime and soda ash were used for softening, alum for coagulation, carbon, at times, for taste and odor removal, and post-chlorination for final purification.

This method of treating was producing a pure, colorless, palatable water with approximately 85 ppm total hardness.

Raw water is brought into two flocculating chambers, each having a retention time of approximately 10 to 15 minutes. There is no rapid mix and the flocculators turn at a rate of 4 rpm. Chemicals are added to these chambers at various points, depending upon the characteristics of the raw water. The point of application has been found to be very important in obtaining optimum coagulation. A general rule is to apply the coagulant before the lime, but on some occasions it has been found that better results could be obtained by treating with lime before the coagulant. The only sure-fire method of ascertaining at what point optimum coagulation can be obtained is by trial and error. A flume carries the thoroughly mixed water to a Dorr clarifier and then through the settling basins, which have a retention time of approximately three hours. This usually gave us sufficient time for good sedimentation. Carbon dioxide gas, generated by burning coke, is then pumped through the water in a recarbonation chamber before the water is applied to the filters. The water is then filtered, chlorinated, and stored in an underground well.

We had always noticed that a fine floc formed in the mixing tanks during the cold-weather months and settled very slowly. Likewise, we were getting a few complaints from consumers that their hair was sticky after washing. There was also a slight scum on top of the water that had stood for a long time undisturbed. This scum and stickiness always occurred during periods of high turbidity when alum dosages from 3 to 10 gpg were required. Investigation showed that residual alum was passing through the filters and entering the distribution system. In 1933 we investigated the possibilities of using an iron salt for coagulation. Both liquid and lump ferric chloride, and lump and pebble ferric sulphate, were furnished by producers of these tests. The laboratory tests showed very good results, but the cost was prohibitive and the feeders had not been perfected enough to handle the material available at that time. The investigation, therefore, was dropped.

No more was done with iron until 1941, when complaints about the hair stickiness and the scum on the water increased. Our pumping had gone up, and we were having difficulty in settling out the fine floc that was being formed in the water. This was placing an unnecessarily heavy load on the filters. We again turned to iron and contacted the Tennessee Corporation, of Lockland, Ohio, which was producing a commercial grade of ferric sulphate under the trade name of "Ferri-Floc." Literature and samples for laboratory tests were obtained and work started on comparing treatment with ferric sulphate against treatment with aluminum sulphate.

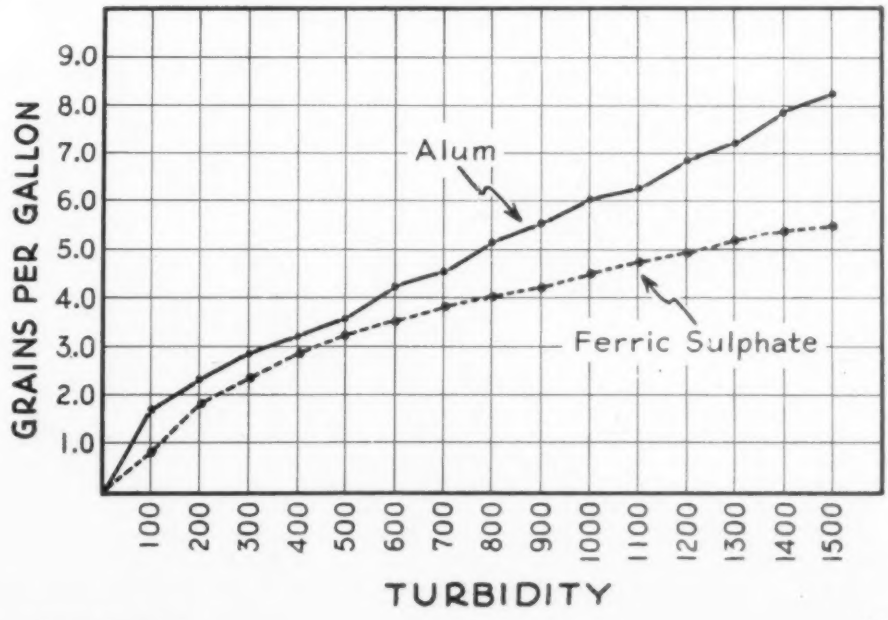
A brief summary of our laboratory findings were as follows:

1. Ferric sulphate was found to be equal to alum in all cases and under all conditions. It was superior to alum in about 80% of the test. A great difference was noted in the amount of chemical needed for complete coagulation when the turbidity reached 500 or more ppm. In a great number of cases, when the turbidity was over 500 ppm, it was impossible to get complete coagulation with alum regardless of the amount used.

2. Ferric sulphate effected a savings in coagulation cost in some waters as high as 40%. Most impressive saving was found to be on waters of high turbidity.

3. Improvement was observed in the rapid formation of a large, well-formed floc that settled very rapidly, and gave a clear applied water, while in many cases alum left the water with a milky appearance presumably caused by a fine pin-point floc in suspension. This condition occurred in muddy and cold water, and was not rectified even when the alum dose was increased.

Other tests were run, giving us the information indicating that no adverse change would occur in the finished water if ferric sulphate were tried on a plant-scale test. The first plant-scale test was begun in February 1942. A Guant screw-type feeder was used for feeding alum. Consequently, we decided to use this same feeder for ferric sulphate. A crock with a capacity of 20 gallons was obtained and a hole was drilled with a star drill approximately two inches from the top. A rubber garden hose was attached that led to the point of application, and a wooden baffle placed in the crock with an opening at the bottom to hold back any undissolved material, in order to utilize the entire retention time. A Lighting



mixer was mounted on a separate framework to provide violent agitation of the ferric sulphate solution in the crock.

The plant was started on Ferri-Floc at the same gpg dosage as we had been using for alum. We soon found that we had been overdosing by building too much floc, which made settling too slow. We reduced the feed during the next two days, allowing a minimum of three hours between changes, until we reached a feed of 33% less than the alum requirement. This seemed to be the required iron dose for the water we were treating. A brief summary of the first plant test follows:

1. The Guant feeder used for alum could be used for ferric sulphate with a few changes.
2. No trouble was encountered by putting ferric sulphate into solution, and no fumes were given off by the solution.
3. That water could be coagulated with ferric sulphate to effect a saving ranging up to 40% in the cost of coagulation.
4. The iron-coagulated water was completely coagulated and a very satisfactory applied water was obtained. This condition was not obtainable with alum.
5. There was no residual iron in the finished water.

This first test was of a short duration and on water of just one characteristic, while our water varies at all times. However, the results that were obtained warranted further investigation. We then secured material and held it for a water that was unsatisfactory when treated with alum. Throughout the rest of 1942 and the greater part of 1943, we continued this method of testing. Water of all types was treated with both methods, alum and ferric sulphate, and the results were recorded. It would have been much better and quicker if parallel tests could have been run on both coagulants at the same time, but this was impossible with our plant layout. The chart shown here was compiled from figures taken over the past five years and averaged. It can readily be seen that the required coagulant dose was definitely less for equal turbidity.

It should be pointed out that these figures were taken over both winter and summer months in order to prevent giving an advantage to either coagulant due to the warmer water encountered during the summer months. Six months were selected that had approximately the same water temperature, turbidity, and other characteristics — three in which ferric sulphate was used exclusively, and three in which alum treatment was used exclusively.

PERFORMANCE OF FERRIC SULPHATE AND ALUM

		Av. Turb.	*Grains Per Gal.*	*Per mg Cost*
Ferric sulphate	Nov. 1944	35 ppm	.44	$ .83
Alum	Nov. 1943	20 ppm	.70	1.36
Ferric sulphate	June 1943	171 ppm	1.0	1.85
Alum	June 1942	160 ppm	2.2	4.70
Ferric sulphate	April 1945	150 ppm	1.1	2.16
Alum	May 1944	116 ppm	1.4	2.56

These are listed above, giving the cost per mg:

It will be noticed that a saving of the cost of the coagulant ranged from 16% to 61%, the greatest saving being on a water of a high turbidity, notwithstanding the fact that the original reason for using ferric sulphate was for the improvement of quality rather than economy.

To sum up the results obtained since the using of ferric sulphate as a permanent coagulant:

As the previous data have indicated, the past five years have disclosed that for the type of water we have to treat, ferric sulphate is the most effective coagulant we can use. We have been able to reduce our chemical costs, to improve the over-all operations of the plant, and to turn out a higher quality of water than was possible previously.

It is also interesting to note that in the last five years the dosage of carbon required to remove the taste and odor effectively has been considerably less. This leads us to believe that taste and odor removal can be helped considerably when complete coagulation takes place in a plant. The filter operation has improved, we are receiving longer runs, and the trouble with mudballs in our filter beds has been reduced.

Since the beginning of these tests, new feeders, designed to feed ferric sulphate, have been purchased, and the resulting accurate feed and better solution have further lessened the required dosage.

How Should a City Invest Its Idle Funds?

THIS question was spotlighted recently in Milwaukee where an unusually high current fund balance, amounting to almost $33 million dollars, has been accumulated. This is accounted for by the fact that tax collections, both current and delinquent, have been most favorable, and public works have been deferred because of the war and present economic conditions. Except for $3 million invested in government securities and $5.8 million in checking accounts, the funds were all deposited in Milwaukee banks in accounts bearing ½ of 1% interest.

The question was raised as to whether it would not be better for the city to invest a larger portion of its cash reserves in long term federal government bonds in order to obtain a greater interest return. It was thought that such bonds would yield 2½% interest.

A report was made on this matter by Virgil Hurless, deputy city controller, to a Special Committee on Taxation and Financial Matters. His findings showed that because a premium has to be paid for federal government bonds when they are bought, the actual interest return would be about 1.07%. Moreover, as the city has needs for keeping its accounts current and available for any eventuality, it cannot invest a large portion of its moneys in long term bonds which it is not sure of being able to sell on short notice. The Hurless report also pointed out that present cash reserves are heavily committed to the 1948 budget.

However, Mr. Hurless did indicate some other avenues of investment which will prove more useful and profitable to the city. These included the possibilities of using the cash reserves for the financing of various construction programs, including a $1 million Sports Arena for the Auditorium Board, a $2 million off-street parking facility program, and a Housing Authority construction program. At the end of the construction periods of these ventures, it was proposed that the city could invest in the revenue bonds of all of these projects. Thus, not only would there be savings of interest to be made during the construction periods, but interest returns on the revenue bonds of about 3% might be expected.

It was also proposed that the sale of $3.5 million of general obligation bonds for Veterans' Housing purposes, and of $2.5 million of Blight Elimination bonds expected to be authorized, could be deferred or the entire issues absorbed by application of the present cash reserves.

THE AMERICAN CITY would be glad to hear from other municipalities which are considering the status and disposition of their reserve funds, in order that they may be used to their best long-range advantage.

Augusta's Five-year Street Program

Forty-three miles of new streets are being built here, using sand-clay base and inverted penetration surface

THERE will be 43 miles of streets with improved surfacing in Augusta, Ga., by 1953 under a program now being pushed forward by City Engineer John Twiggs. Ten miles of streets are scheduled for completion this year.

The street construction utilizes a sand-clay base that has seen plenty of service in this area. Much of this base material can be found naturally, and does not require any additional mixing or blending. In one new addition being built here, the city has reached an agreement with the developer that it can take any and all sand-clay from the area, excavating to such depth as will leave the area suitable for housing. This will mean a low-cost supply of base material for much of the street program, will enable the developer to build badly needed homes at somewhat lower cost, and thus eventually will make it possible to turn a wasteland into a tax-revenue producing area.

The city does much of the work itself. In the well-equipped public works yard are two Etnyre distributors for asphalt work. One holds 1,000 gallons and the other 650. Also in the yard are a 10-ton Huber roller, a 5-yard Gar Wood scraper-loader, a Huber Maintainer, with its handy bulldozer blade and four 12-foot graders. Engineer Twiggs expects to buy a sheepsfoot roller shortly. He feels that this type of equipment is particularly good at finding soft spots in the subgrade and base, as well as doing a thorough compacting job. A labor-saving Parsons Trenchliner serves for ditching purposes.

Engineer Twiggs customarily lays an eight-inch clay base, primed with asphalt or tar, and protects it with double-surface armor coating. The width of these streets is customarily designed at 30 feet with concrete curb-and-gutter. The contract price has been running on an average of $9.00 per lineal foot, including curb-and-gutter; built without curb-and-gutter the cost would be approximately $7.00 per lineal foot. The city has just completed paving a test street with city forces at a cost of about six-tenths of the contract price. This cost, however, covers only labor and material.

Both the open and closed types of refuse trucks are used here.

Here is City Engineer John Twiggs examining the new ditch digger acquired by his department.

The City of Augusta's street-construction equipment is shown here, lined up and ready for usefulness in the Public Works Yard.

Salaries of Municipal Officials

THROUGH the courtesy of The International City Managers' Association THE AMERICAN CITY has the privilege of reproducing from the 1948 edition of *The Municipal Year Book** the accompanying salary table. Discussing this table, the *Year Book* says:

"The annual salaries of selected municipal officials as of January 1, 1948, for individual cities were supplied to the *Year Book* directly by city officials in January and February, 1948. Only salaries of $1,500 or more have been included, except the salary of the official designated as serving part-time. Where salaries of less than $1,500 were reported, it was assumed the official was part-time and the amount is excluded from the average and the distribution, except mayors of council-manager cities whose salaries are reported regardless of size.

"In cases where an individual held more than one position, the total salary received from the several positions was considered and this salary classified under the first of his positions as shown in the table; for example, if an individual was reported holding the positions of city clerk, treasurer, and purchasing agent, he was classified as city clerk, and the total salary was included under 'city clerk.' Cost-of-living bonuses were included where known.

"Some interesting comparisons can be made between the rank order of average salaries of selected officials in the several population groups. City managers and superintendents of schools are the two highest paid positions, except in the population group over 500,000 where mayors replace city managers, since there are no council-manager cities over 500,000. In the largest city group, the mayor, school superintendent, attorney, controller, health officer, and director of public works are the top six in that order. In the other population groups, the top six positions are filled by the city manager and superintendent of schools, who are first and second respectively in each city-size group, and health officer, attorney, engineer, director of public works, and mayor. The mayor holds the third position in the 250,000 to 500,000 and 100,000 to 250,000 population groups, the attorney in the 50,000 to 100,000 group, and health officer in the 25,000 to 50,000 group and the engineer in the lowest group. Fourth, fifth, and sixth positions are held by the health officer, engineer and attorney in the 250,000 to 500,000 and the 100,000 to 250,00 city-size groups.

"In the 50,000 to 100,000 group, health officer is fourth, director of public works fifth, and engineer sixth. In the 25,000 to 50,000 group, attorney is fourth, engineer fifth, and director of public works sixth. In the lowest group, health officer is fourth, director of public works fifth, and attorney sixth. In the lowest city-size group the mayor dropped from the top six positions shown to the eighteenth rank. The police chief is seventh in cities over 500,000, the highest ranking attained by this official, the lowest being the fourteenth rank in the 10,000 to 25,000 population group. In all but the 100,000 to 250,000 group, the fire chief ranks below the police chief and in that group their average salaries are practically the same."

Averages and Quartiles

"Most tables presented in this volume summarize data for all the cities of a given population group. The correct use of such data involves an understanding of the summarizing devices which have been employed. In many cases an average is shown. The average of an index for a group of cities is intended to represent the typical value of the index for those cities. In addition to the familiar arith-

Title of Official	No. of Cities Reporting	Average Salary 1948	Distribution of 1948 Salaries				
			Lowest	Lower Quartile	Median	Upper Quartile	Highest
CITIES OVER 500,000							
Mayor	12	$17,358	$10,000	$12,975	$18,000	$20,000	$25,000
City Clerk	12	7,358	4,700	5,055	6,795	9,500	12,000
Director of Finance	2	9,825	9,000	.....	9,825	.....	10,650
Controller	10	12,115	8,000	9,225	10,700	15,263	20,000
Auditor	5	8,091	6,000	6,006	7,194	10,625	11,750
Treasurer	12	9,245	6,180	8,000	9,790	10,000	12,500
Engineer	10	9,845	7,000	7,481	9,000	12,120	15,000
Director of Public Works	11	10,709	8,000	9,000	9,600	12,840	15,000
Superintendent of Streets	10	8,467	5,086	6,648	8,300	10,100	12,840
Fire Chief	12	9,429	7,080	7,500	8,500	10,686	15,000
Police Chief	12	9,930	7,200	7,581	9,300	12,057	15,000
Purchasing Agent	10	9,584	6,000	6,765	10,400	12,000	12,500
Chief Personnel Officer	7	7,996	3,919	5,520	9,300	10,000	10,000
Attorney	12	12,289	8,000	9,700	11,027	15,000	17,500
Health Officer	11	11,095	7,500	8,100	10,000	13,500	18,708
Superintendent of Parks	7	8,868	4,560	6,518	8,000	12,000	15,000
Recreation Director	7	7,095	4,700	5,500	6,000	7,620	12,480
Librarian	10	9,500	6,720	7,975	9,300	11,460	12,500
Superintendent of Schools	9	15,482	8,000	11,250	12,650	21,845	25,000
CITIES WITH 250,000 TO 500,000 POPULATION							
Mayor (nonmanager cities)	14	$9,507	$5,000	$6,000	$8,800	$12,125	$20,000
Mayor (manager cities)	6	4,060	1,040	1,948	3,420	6,923	7,500
City Manager	6	18,333	10,000	11,500	19,000	25,000	25,000
City Clerk	18	5,375	3,600	4,275	5,382	6,000	8,800
Director of Finance	10	6,326	4,500	5,000	6,000	7,695	8,400
Controller	8	6,280	5,000	5,250	6,390	8,175	8,925
Auditor	8	6,280	5,400	5,793	6,189	6,820	7,260
Treasurer	13	5,499	3,600	4,985	5,800	6,090	6,420
Engineer	17	7,227	4,973	6,090	7,000	8,411	10,000
Director of Public Works	14	6,925	4,500	5,750	7,250	8,175	8,925
Superintendent of Streets	9	5,356	3,120	4,480	4,990	6,449	8,500
Fire Chief	20	6,292	5,000	5,430	6,120	7,334	9,980
Police Chief	20	6,451	5,000	5,495	6,150	7,334	10,000
Purchasing Agent	19	5,441	3,300	4,524	5,500	6,180	7,198
Chief Personnel Officer	13	5,653	3,600	4,800	5,400	7,109	7,650
Attorney	20	7,961	5,000	6,145	7,500	9,615	12,000
Health Officer	19	7,654	5,000	6,359	7,650	8,560	10,300
Superintendent of Parks	16	6,062	4,420	5,061	5,933	7,154	8,220
Recreation Director	14	4,843	3,300	3,683	4,440	6,225	7,198
Librarian	15	6,202	4,000	4,590	6,270	7,200	10,750
Superintendent of Schools	15	11,824	8,500	10,000	12,000	13,500	16,000
CITIES WITH 100,000 TO 250,000 POPULATION							
Mayor (nonmanager cities)	34	$7,200	$3,600	$5,250	$6,550	$7,800	$15,000
Mayor (manager cities)	12	1,932	360	700	1,650	2,400	5,000
City Manager	15	13,750	8,000	11,200	15,000	15,750	20,000
City Clerk	45	4,699	2,500	3,600	4,800	5,568	6,800
Director of Finance	21	5,794	4,200	4,800	5,300	6,950	9,000
Controller	21	4,349	3,000	4,100	5,700	6,150	8,250
Auditor	29	5,413	3,000	4,375	5,280	6,087	9,000
Treasurer	34	5,492	2,100	4,275	4,852	6,021	8,500
Engineer	37	6,388	3,400	5,084	5,800	6,550	10,000
Director of Public Works	28	5,855	3,600	4,850	5,500	6,206	10,000
Superintendent of Streets	35	4,801	3,263	3,820	4,620	4,860	7,999
Fire Chief	48	5,261	3,263	4,603	5,180	5,808	7,392
Police Chief	46	5,243	3,300	4,489	5,180	5,820	7,392
Purchasing Agent	31	4,631	2,320	3,600	4,500	5,500	7,500
Chief Personnel Officer	15	5,091	3,960	4,398	5,220	5,600	6,084
Attorney	41	6,868	3,803	5,530	6,700	7,974	10,000
Health Officer	35	6,919	3,803	5,520	6,780	8,250	10,000
Superintendent of Parks	40	4,582	2,980	3,853	4,398	5,065	7,380
Recreation Director	36	4,614	2,640	3,726	4,649	5,200	7,392
Librarian	40	5,375	3,432	4,463	5,184	6,000	8,000
Superintendent of Schools	35	9,200	7,276	8,000	9,500	10,500	14,000

*—In addition to the salary figures here reproduced, the 1948 *Municipal Year Book* contains a table of Pay Rates for Selected City Jobs—policeman, fireman, draftsman, stenographer, typist, bookkeeper, labor foreman, junior civil engineer, etc. Some of the other special features of this comprehensive annual were cited in a brief review on page 147 of the August issue of THE AMERICAN CITY.

metic average or mean, the median has also been used. The median designates the value of the middle item in a series of items arranged in order of increasing size; i.e., one-half of the items fall above, and one-half below the median. To illustrate the distinction between median and average, suppose five persons have wages of $3, $4, $5, $7, and $11. The average is $6, the median is $5. An average, whether it be an arithmetic average or a median, is only a measure of the typical, or usual case, it is in no sense a standard. The average number of employees in 1938 in cities over 500,000 was 13.4 per 1,000 population. This does not mean that cities of that size should have that precise number of employees, but that the average city did have that number.

"Of equal importance are measures of dispersion which show how closely the individual items adhere to the average, or how widely they are distributed about the average. The four measures of dispersion that have been used here are (1) the lowest item, (2) the first or lower quartile, (3) the third or upper quartile, and (4) the highest item. The lowest and highest items are self-explanatory and indicate the total range covered by the items. When the items are arranged in order of increasing size, the first quartile is that value below which one-quarter of the items fall, and the third quartile is that value below which three-quarters of the items fall.

"Comparison of the statistics of an individual city with the average will only indicate whether it is out of line with usual practices and suggest the need for further analysis of operations. Comparison with quartiles and range will indicate how far the city departs from the typical and will help to determine whether the deviation is of sufficient magnitude to be significant."

Title of Official	No. of Cities Reporting	Average Salary 1948	Distribution of 1948 Salaries				
			Lowest	Lower Quartile	Median	Upper Quartile	Highest
CITIES WITH 50,000 TO 100,000 POPULATION							
Mayor (nonmanager cities)	58	$5,727	$2,000	$4,500	$5,450	$7,050	$10,000
Mayor (manager cities)	25	1,212	300	510	900	1,350	4,000
City Manager	27	10,218	5,000	8,514	10,241	12,000	15,000
City Clerk	88	4,231	2,280	3,255	4,212	4,995	7,500
Director of Finance	34	4,988	2,400	3,900	5,000	6,000	8,000
Controller	40	4,904	1,500	4,000	4,500	5,775	7,800
Auditor	35	4,536	2,700	3,750	4,800	6,000	9,350
Treasurer	58	4,402	2,380	3,663	4,428	5,245	8,500
Engineer	82	5,028	2,138	4,233	5,020	5,998	8,300
Director of Public Works	48	5,508	3,000	4,500	5,204	6,575	8,500
Superintendent of Streets	59	3,975	2,700	3,400	3,873	4,600	7,500
Fire Chief	89	4,688	3,060	3,962	4,585	5,215	6,960
Police Chief	89	4,822	3,005	4,000	4,704	5,500	7,020
Purchasing Agent	50	3,887	2,520	3,285	3,900	4,385	5,796
Chief Personnel Officer	23	4,318	2,400	3,420	4,000	5,000	7,833
Attorney	67	5,811	3,250	4,420	6,000	7,000	8,691
Health Officer	56	5,699	3,000	4,500	5,996	6,880	8,550
Superintendent of Parks	64	4,172	2,400	3,500	4,000	4,767	6,960
Recreation Director	53	3,996	1,840	3,366	4,004	4,745	6,066
Librarian	58	4,166	2,400	3,530	4,100	4,743	5,991
Superintendent of Schools	48	8,755	5,500	7,500	8,500	10,000	13,000
CITIES WITH 25,000 TO 50,000 POPULATION							
Mayor (nonmanager cities)	101	$4,116	$1,500	$3,350	$4,000	$5,000	$7,500
Mayor (manager cities)	41	902	100	500	750	1,200	3,000
City Manager	52	8,703	4,000	7,275	8,295	10,000	15,672
City Clerk	161	3,888	1,800	3,200	3,660	4,439	9,504
Director of Finance	26	4,284	2,250	3,412	4,000	4,895	7,150
Controller	32	4,211	1,800	3,620	4,280	4,980	6,000
Auditor	64	3,773	2,100	3,066	3,600	4,328	6,600
Treasurer	113	3,950	1,800	3,225	3,824	4,500	10,000
Engineer	146	4,603	1,800	3,800	4,500	5,200	9,180
Director of Public Works	50	4,502	2,250	3,578	4,310	5,350	10,300
Superintendent of Streets	110	3,635	2,100	3,055	3,600	4,092	7,000
Fire Chief	168	4,023	2,340	3,600	3,980	4,450	6,540
Police Chief	170	4,094	2,460	3,600	4,010	4,560	8,112
Purchasing Agent	44	3,407	2,280	2,880	3,245	4,053	5,100
Chief Personnel Officer	9	4,489	3,246	3,666	4,140	5,470	6,600
Attorney	67	4,820	2,520	3,600	4,485	5,300	10,164
Health Officer	59	5,273	2,100	4,000	5,000	6,500	10,000
Superintendent of Parks	107	3,455	2,250	2,896	3,410	3,900	6,540
Recreation Director	73	3,740	2,000	3,125	3,600	4,247	6,300
Librarian	116	3,281	1,800	2,715	3,250	3,945	5,000
Superintendent of Schools	102	7,220	4,800	6,500	7,306	8,100	10,167
CITIES WITH 10,000 TO 25,000 POPULATION							
Mayor (nonmanager cities)	137	$3,086	$ 120	$ 2,400	$ 3,000	$ 3,600	$ 8,400
Mayor (manager cities)	94	585	50	173	500	700	3,600
City Manager	135	6,491	2,500	5,457	6,468	7,450	12,500
City Clerk	433	3,415	1,620	2,700	3,300	3,900	9,450
Director of Finance	27	3,483	2,000	2,700	3,300	4,260	5,400
Controller	22	3,671	1,500	3,143	3,750	4,425	5,000
Auditor	93	3,369	1,800	2,825	3,300	3,703	6,600
Treasurer	202	3,352	1,500	2,700	3,261	3,900	7,970
Engineer	313	4,179	1,920	3,426	4,000	4,800	10,000
Director of Public Works	110	4,077	2,000	3,099	3,816	4,753	10,200
Superintendent of Streets	266	3,154	1,600	2,640	3,000	3,600	6,508
Fire Chief	419	3,336	1,980	2,860	3,216	3,780	6,000
Police Chief	508	3,438	1,739	2,906	3,300	3,900	6,500
Purchasing Agent	28	3,167	2,200	2,869	3,000	3,405	4,500
Chief Personnel Officer	10	3,286	2,040	2,732	3,450	3,810	4,320
Attorney	63	4,022	2,160	3,300	3,900	4,800	7,828
Health Officer	63	4,103	2,088	3,000	4,100	5,000	7,200
Superintendent of Parks	187	2,869	1,500	2,400	2,800	3,213	5,148
Recreation Director	111	3,416	1,750	2,970	3,440	3,800	7,500
Librarian	233	2,674	1,500	2,100	2,568	3,110	6,000
Superintendent of Schools	199	6,009	2,100	5,100	5,996	6,600	12,000

Public Servants—

A Constructive Loyalty Program

A constructive program for promoting the loyalty of public servants—federal, state, and local—was urged by Charles E. Merriam, Professor Emeritus of Political Science, University of Chicago, in a recent address on "Some Aspects of Loyalty," published in the Spring 1948 issue of the *Public Administration Review*. "Such a program," said Dr. Merriam, "might include among other factors the following:

"1. *Closer attention to adequate compensation of public employees, to their social security, to more satisfactory working and living conditions*, and this without too great a lag behind the demands of the day and time. Why should public servants be called upon to accept compensation below the comparable standards of the society in which they live? We cannot forget that just treatment is a highly significant factor in morale and in loyalty.

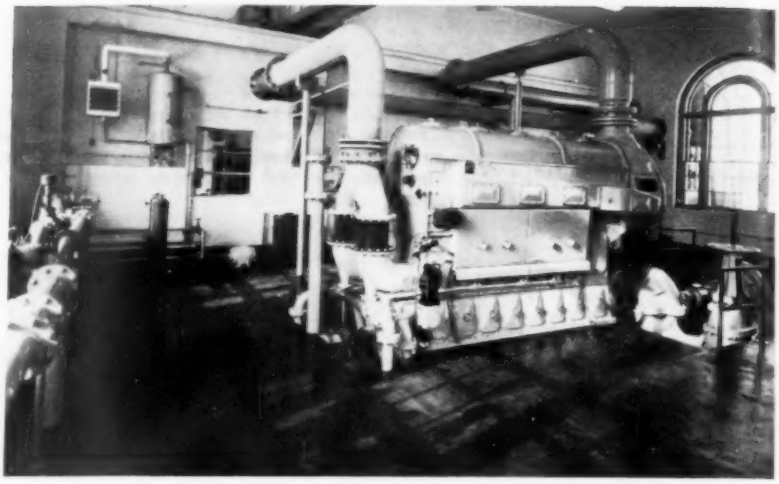
"2. *Broader opportunities for in-service training of a type now found in some of our agencies.* Such training would enable many public servants to broaden and enrich their area of interest and competence. The basis of modern scientific and technological progress which is the key to our civilization is not found in complete conformity and docility, but in critical attitudes leading to invention and advance in public as well as in private business. We must be on the alert for unorthodox, original, creative minds, capable of discovering new relations and better ways of doing things—in peace as well as in war. Working within the limits of constitutions and statutes does not mean working outside the boundaries of reason, discovery, creation. Public as well as private government looks for challenge as well as conformity; we need invention as well as convention. Reorganization and rejuvenation of the public service will tend to bring not only efficient, but proud, service and stouter faith in the common cause.

"3. *Halting the stream of bitter, smearing attacks upon public servants and service.* Bureaucrats, barnacles, taxeaters, loafers—these terms constantly applied to public servants do not tend to improve the morale of the workers or to promote attachment to the government they serve. To say that 'the best public servant is the worst' comes close to the line of disloyalty. It does not help efficient government or inspire the devotion of those who serve on all levels of government. Indiscriminate baiting of public servants stands across the way of the finest type of public service and the liveliest forms of allegiance to the common good. It tends to drive men away from the public service, yet without the public service the nation cannot live."

Manchester, N. H., Water Department supports hydro power with diesel to meet peak demands and provide emergency reserve

Double-Duty Diesel Power

By CLARENCE L. AHLGREN
Assistant Engineer
Manchester, N. H.



The new 960-hp opposed piston diesel engine and the pumps that it powers.

THE City of Manchester, New Hampshire, installed a 960-hp opposed piston Fairbanks-Morse diesel engine driving a 12-mgd pumping unit in January 1948. An intensive study of water use characteristics, peak loads, population statistics, industrial expansion, and pumping equipment indicated a need to install a versatile pumping unit that would meet the following requirements:

1. Total peak loads of the City.
2. A prime mover for emergency use in case of power failures.
3. Delay the day when larger pumping units would be required to replace the present units.

Has High and Low Level System

The city is served by a divided distribution system, High Pressure and Low Pressure. The original system was the Low, developed to supply a growing city that settled along the banks of the Merrimack River, where power was abundant and waste disposal easy. As the city grew, it reached out to the higher land and a demand for water service to that area was met by constructing a second pumping station, reservoir and distribution system. The two systems are interconnected by regulating valves.

The Low Pressure Pumping Station is situated at the outlet of Massabesic Lake, a 15-billion-gallon supply. The Lake is a one year storage proposition. Therefore, it can be used for power generation part of the year. A 375-kw generator supplies the power required by the stations 40% of the year. The wheel, rebuilt by S. Morgan Smith in 1936, is unique in that it is of horizontal-double-draft-tube construction and the wheel gates can be operated individually. A single wheel can supply the power for the Low Pressure pumps and the two wheels together will generate enough power for the High Pressure pumps, the turbine thereby operating on the most efficient gate opening at all times. There are two motor driven pumps in this Station—De Laval 8.2 mgd, 300 hp (1938); and De Laval 7.5 mgd, 250 hp (1917; rebuilt 1938), 180-foot head. The newer unit has an efficiency of 89%. The rebuilt unit efficiency was brought up from 72% to 79% and the capacity increased from 5.4 mgd to 7.5 mgd. The new unit replaced a 6 mgd pump.

The High Pressure Station has two motor driven units—Ingersoll-Rand single stage 7.3 mgd, 400 hp (1940); De Laval two stage 6.5 mgd, 400 hp (1917; rebuilt 1940) 280-foot head. The efficiency of the newer unit is 87%. The rebuilt unit efficiency was increased from 72% to 76.5% and the capacity increased from 5.7 mgd to 6.5 mgd. The new unit replaced a 3 mgd pump. At each station efficient hydraulic design of suction and discharge lines when rebuilding saved more than 15 feet of friction head.

Manchester's attractive pumping station, which houses the new diesel engine.

Strategic Site for New Engine

The High Station is in the most strategic spot, so the emergency unit driven by a prime mover is at this station. In 1902 a Snow Triple Expansion Steam Pump, 6 mgd, was put into operation. By 1945 this unit plus the boilers was expensive to operate and lacked capacity for emergency and peak loads. The water use in the city had risen from a yearly average of 5 mgd to 8 mgd. The study of the problem indicated a diesel unit such as was installed. The station was completely remodeled and the diesel unit placed in the old Snow pump room.

The 960-hp opposed piston unit, 720 rpm, is directly connected to two 16-inch Fairbanks-Morse pumps, eliminating the need for an increasing gear. The auxiliaries include a Curtis starting air system; Ross fresh-water heat exchanger; Ross lube-oil cooler; Hilco bypass oil filter system utilizing both

cellulose and Fuller's earth cartridges; a Purolator in-line lube-oil strainer; a Nugent fuel-oil filter; a Roper pre-start lubricating oil circulating pump; a Fairbanks-Morse after cooling fresh water circulating pump; Alnor pyrometer readings on cylinders and combined exhaust; a Marshalltown gauge board and alarms, energized by an Exide battery, for fresh water high temperatures, low lube oil pressures, and low raw water pressure. The heat exchangers are controlled by Sylphon valves that by-pass the liquid to be cooled. This unit completes a station improvement program designed to provide for future consumption increases and all emergencies. Manchester is secure in its pumping needs.

The system is further strengthened by a booster station constructed in 1941, which can lift 3 mgd from the Low Reservoir to the High Reservoir. Two Fairbanks-Morse Pumps are powered by two Lincoln Zephyr 110-hp Engines. The High Reservoir has a capacity of 20 million gallons and the Low Reservoir has a capacity of 15 million gallons.

The entire program has been directed by Percy Shaw, Superintendent and Engineer, who came to the Department in 1933. The program has been carried out by the writer. The work from design through construction and installation has been done by the Department.

Billing on the Level Instead of in Peaks

By LEONARD N. THOMPSON
General Manager, Water Dept.
St. Paul, Minn.

THE City of St. Paul bills 65,000 meter accounts, 2,000 of which are commercial accounts and are billed monthly; the remaining 63,000 are domestic and are billed on a quarterly basis.

For accounting purposes the city has been divided into three geographical sections with one of these sections being billed each month for water consumption and sewer rental. Thus the billing load is leveled off to 22,000 accounts instead of 65,000 per month. A further advantage is that the cashiers' department does not have to contend with quarterly peak loads.

The first operation is to post the individual ledger cards from the meter books. The operator selects the group of ledgers that correspond to a particular meter book and proceeds to post. The ledger cards, designed for a 10-years' record, show meter style, size, number, etc., as well as being the basic accounting record. They are filed numerically by street code, then numerically by street numbers.

The posting, like the billing to be described, is completed simply and with speed on four Underwood Sundstrand municipal accounting machines. The operator inserts the ledger card through the front-feed mechanism. She then sets up on the keyboard the current and previous readings, and the machine automatically computes and prints the net consumption. Next the water and demand charges are entered and the machine automatically computes and prints the gross water charge. The final entry on the ledger is the amount of the sewer rental, and immediately after printing this figure the machine automatically opens its front-feed mechanism, permitting the removal of the form, and the carriage returns to the starting position.

After the information of each meter book has been posted to the correct ledger, the operator engages the totaling mechanism and the following totals are printed automatically upon the proof sheet; total consumption, total water charge, total demand charge, total gross water charge, and the total sewer rental charges.

The above totals together with the meter book are then given to the billing clerk who prepares the bills on the same type of machine as was used for the ledger postings. The figures are entered in the same order, except that after the sewer rental has been entered the machine will automatically print the total amount due. After the operator has completed a meter book she merely totals the machine and compares these totals with the totals given her by the ledger billing operator.

When an arrear item is to be entered she depresses a key which causes the machine to return to an intermediate position permitting her to enter the arrear total water charge and the arrear sewer rental amount. The machine then automatically prints these amounts on the stub, returns to an intermediate position again, and automatically computes and prints on bill and stub the grand total water charge due, the grand total sewer rental, and the grand total amount due.

In addition to arrear items there occurs, not too frequently, a step billing on the domestic bills and quite frequently a step billing on the commercial accounts. In these cases the operator need only depress a key which will cause the machine to stop in the consumption column, where she lists the consumption steps vertically. Then, depressing a carriage return key, the machine returns and prints double ciphers on the journal proving the accuracy of the step distribution.

A merit of this system is that the same machine that is used for ledger posting may also be used for billing or for cash posting. Another feature is that both current and arrear items are posted at the same time while the form is in the machine. Finally, the machine adds the current amounts to the delinquent amounts to give the consumer the total amount due.

Cemetery Operation Reported by 184 Municipalities

THE management and charges of municipal cemeteries in 184 cities over 10,000 population are described as a new feature of the 1948 *Municipal Year Book*, recently published by the International City Managers Association. Eighty-five of the 184 cities have more than one cemetery. In approximately three-fourths of the cities, the cemeteries are located inside the city limits.

In 134 cities the cemeteries are administered separately from other municipal activities, and in 50 other cities are part of another department. Twenty-six are in the park department, 17 in the public works department, four in the public utility department, two in the welfare department, and one in the health department.

In 64 of the 184 cities all cemetery lots are under a perpetual care plan. *The Municipal Year Book* contains a table giving details of operation for each individual city reporting. Further information on organization and administration of cemeteries is contained in a special information report issued by the International City Manager's Association in October, 1947, entitled "Management of City-owned Cemeteries" and distributed to officials of cities that subscribe to the Association's Management Information Service.

Urban Progress in Latin America

By ANATOLE A. SOLOW, *Housing and City Planning Specialist, Pan-American Union.*

Peru Tackles Planned Urban Decentralization

NORMAN WILLIAMS, JR.
Co-Author

THE Peruvians have been obtaining remarkable results in planning and housing. Recent achievements there indicate a comprehensive and forward looking approach to city planning. As in most Latin American countries where the overwhelming concentration of population is to be found around the capital cities, the major activities are taking place in the metropolitan area of Lima and its port of Callao; but a start has also been made in the smaller communities.

In perhaps the most impressive achievement, the Corporación Nacional de la Vivienda, described by David Vega Christie in a recent article in THE AMERICAN CITY (February 1948), has drawn plans for six huge housing projects which are in reality entire "satellite communities." Moreover, work has now almost been finished on one of these—Neighborhood No. 3. The six neighborhood units are to be located in a semi-circle around central Lima, partly along the main line of industrial development towards Callao, and partly near the principal residential development south toward the seashore resorts.

It is of significance that the importance of planned decentralization is recognized, following the pattern apparent in recent British planning. Although the new communities are not entirely comparable in scope to the "New Towns" in England, nevertheless each neighborhood unit is self-sufficient with respect to all community facilities, including invariably the football field. It is hoped that these new "satellites" will drain enough people out of the blighted areas around central Lima to permit the redevelopment of the latter at a future time.

The location of the six projects fits into the comprehensive master plan for the metropolitan area now being prepared by the Central Planning Office, which also draws plans for several rapidly growing smaller cities. For example, a new deep-water port for Southern Perú is being developed at Matarani, and Chimbote in the North Coast has been selected as the site of the first Peruvian steel mill. Detailed and attractive plans are being drawn up to guide the expansion of both cities.

In another interesting experiment, a law passed by the Peruvian Parliament in 1946 provided for the construction in various parts of the country of self-supporting vacation resorts for manual workers. The plans for one of these, on the coast near Lima, envisage a superbly planned modernistic town, also built on the neighborhood-unit principle. These plans make provision for shops, a restaurant or cafeteria, a movie theater, library-club, a nursery, a dancing terrace near the beach, and the apparently inevitable football field. About 22,000 people could spend vacations, limited to two weeks, there every year.

Large private industries are also contributing to the planned development of communities. For example, the International Petroleum Company has undertaken the replanning of the coast oil town of Talara, originally built as a temporary encampment for oil refinery workers and now a town of 10,000. The new town is partly completed and development is scheduled to continue over a five year period. The plan is based on the grouping of three neighborhood units, each with its own school, stores and recreation areas protected from automobile traffic.

Construction of New Oil Refinery in Venezuela Calls for Community Development

RECENT trends indicate that private petroleum corporations expanding their facilities in South America are making a serious attempt to improve the communities for their workers. An example of intelligent and forward looking large-scale planning by big private concerns was mentioned above in referring to the construction of the town of Talara by the International Petroleum Company.

In Venezuela, the Creole Petroleum Corporation, the largest crude oil producer in the world, is providing for its employees modern, simple and sanitary housing well adapted to the exigencies of tropical climate. Now, this company is building a 60,000-barrel per day refinery in Ammay, on the Paraguaná Peninsula. In addition to the refinery and its related facilities, estimated at over $65,000,000, work has been started on the dock area to provide six berths for ocean-going tankers of the largest size. This enterprise will require living accommodations for a staff of 250 American employees and some 1,600 Venezuelans and their families. Housing facilities for this number of families, together with the necessary

PHOTO COURTESY OF FRANCIS VIOLICH

Typical one-family unit provided for employees of new refinery in Venezuela.

schools, hospital, commercial and recreation center, are being planned by the company, and will be built in the form of a complete community at an estimated cost of $30,000,000.

Buenos Aires Establishes Metropolitan Region; Studies Master Plan

BUENOS AIRES—over four million inhabitants in the metropolitan area and still growing—is often referred to as the New York of Latin America. With twenty percent of its total population in the Capital, Argentina shows a trend toward metropolitan concentration similar to the United States. Two steps have been taken recently which will have far-reaching effects upon the future growth and development of Buenos Aires.

A municipal decree of December, 1947, creates a special organ, "Estudio del Plan de Buenos Aires." Established for a duration of three years, this planning board will function under the Secretary of Public Works and City Planning of the municipality. The objectives include the study of the master plan of the city, the organization of the technical departments needed for city planning, popular presentation of the plan in all its phases to the citizens, location and general standards of all public works, and proposals for agreement with adjoining municipalities for extending the plan to the entire metropolitan region.

Realizing that the expansion and overspill of the city beyond its presently constituted municipal boundaries into the adjacent countryside requires a planning approach on a regional scale, a further decree (January, 1948) of the Ministry of Public Works of the Province of Buenos Aires establishes and defines the metropolitan area of "Greater Buenos Aires" for joint planning action. A commission is established to recommend within three months the " . . . permanent and long range means to achieve planning and to devise the most appropriate solutions for the orderly growth and development of Greater Buenos Aires, based on the proper use of the land and guided by contemporary techniques of urban and rural planning."

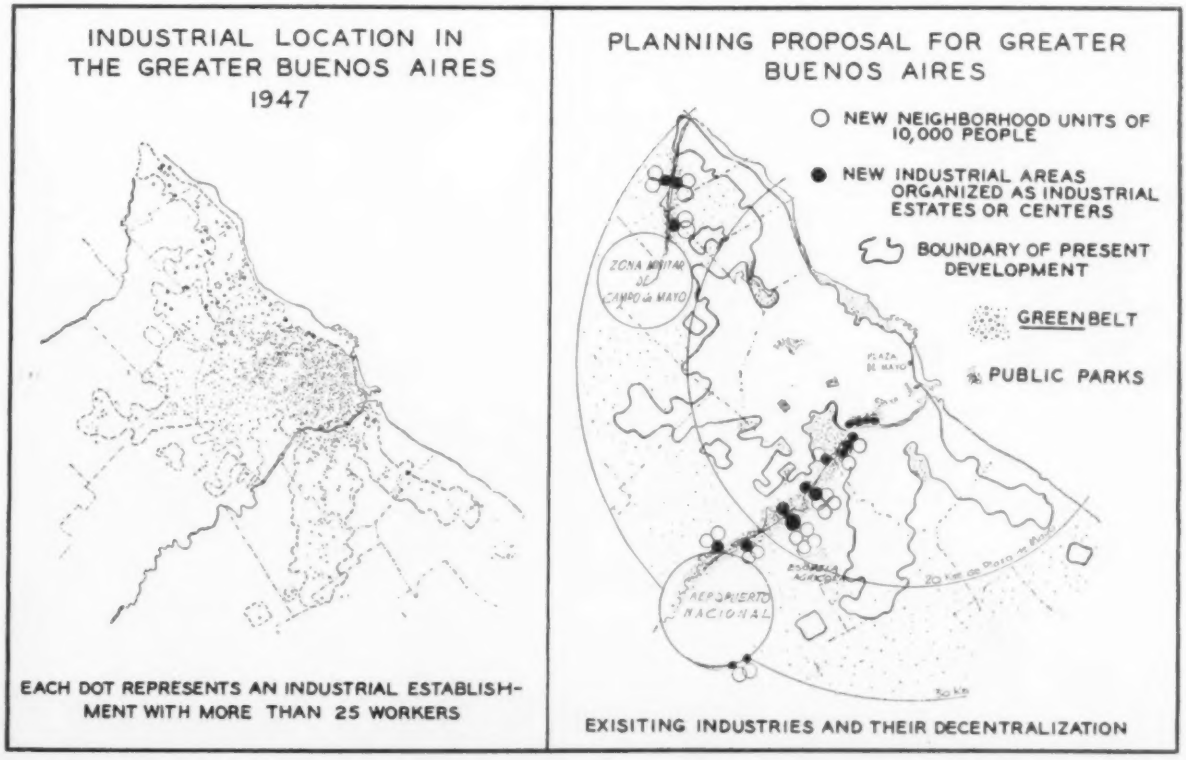
The Commission is also to report on the administrative and juridical unification of the political entities forming Greater Buenos Aires " . . . in order to attain, from the point of view of city planning, the aspirations common to the metropolitan agglomeration of people." Preliminary plans for planned industrial decentralization have already been prepared by the well-known Argentine architect and city planner José M. F. Pastor. Twenty-five million dollars have been appropriated recently by the Government for the building of new subways in Buenos Aires and for the extension of the five lines already in operation.

United States planners have long realized the need for metropolitan unification, but have so far encountered great obstacles to its realization. It will be of importance to watch the progress being made by our colleagues in Buenos Aires.

Montevideo Plans Largest Zoo in Hemisphere

MONTEVIDEO, capital of Uruguay, is adding a zoological garden to the many parks, beaches, and other recreation areas in and outside the city. Being built on a fill along the Santa Lucia river, approximately ten miles from the center of the city and adjoining a magnificent artificial basin for boat races, the zoo, projected as a park of 625 acres, will be the largest and most modern of the Western Hemisphere.

In charge of the design is Mr. Mario Payssé, noted architect, Professor at the Faculty of Architecture, and consultant to the municipal city planning commission. Mr. Payssé toured Europe before the war investigating zoological gardens in various countries, and has now been sent by his government on an eight-month observation trip through the United States.


INDUSTRIAL LOCATION IN THE GREATER BUENOS AIRES 1947
EACH DOT REPRESENTS AN INDUSTRIAL ESTABLISHMENT WITH MORE THAN 25 WORKERS
PLANNING PROPOSAL FOR GREATER BUENOS AIRES
NEW NEIGHBORHOOD UNITS OF 10,000 PEOPLE
NEW INDUSTRIAL AREAS ORGANIZED AS INDUSTRIAL ESTATES OR CENTERS
BOUNDARY OF PRESENT DEVELOPMENT
GREENBELT
PUBLIC PARKS
ZONA MILITAR DE CAMPO DE MAYO
PLAZA DE MAYO
AEROPUERTO NACIONAL
EXISITING INDUSTRIES AND THEIR DECENTRALIZATION

Study of industrial decentralization in Buenos Aires, by the architect and city planner, Jose M. F. Pastor.

Assembly-Line

Long Beach, Calif., uses high-speed mechanized construction methods to replace deteriorated mains with a minimum of customer inconvenience

The first step is to cut the concrete slab with a power-driven saw.

Next, a pneumatically powered paving breaker crushes the concrete.

THE most extensive water-main replacement program in the history of the Long Beach Water Board, and possibly the largest in the country, is now under way in our city. The work is being conducted in a portion of the city built by material dredged from the sea. The soil here is highly corrosive and readily attacks most metal objects. During the last few years, the Water Board has had to contend with an alarmingly frequent number of pipe breaks caused by the unusually corrosive action on the cast iron pipe.

After a study of pipe types able to resist this corrosion, the Water Board decided to replace the corroded mains with an asbestos-cement pipe. The old mains are located in alleys, most of which are only 10 feet wide and contain sewer lines and gas mains. Because of the restricted working space and the need for maintaining uninterrupted service to the water user, the Board elected to install new mains in the streets.

All Mechanical Procedure

This meant extensive cutting of concrete pavements, excavation, backfilling, and repaving. To allow the work to go forward quickly and smoothly, the Board has been using a highly mechanized construction procedure. Trenches are opened through the concrete pavement by making parallel cuts with a Concut Jr. pavement say. The slab between the cuts is then crushed by a Junior R.P.B. pavement breaker, and the broken pieces of concrete removed. A Barber-Greene trenching machine follows a few feet behind and the operation of laying Johns-Manville Transite pipe closely follows the trencher. The ditch is immediately backfilled and not more than two lengths of newly laid pipe are ever exposed at one time.

Before these lines are put into operation, they are thoroughly sterilized with a chlorine solution of not less than 50 ppm. During construction no main is left unguarded without sealing the end of the pipe.

Service crews follow main installations during the same week. No water user is without service for more than a half hour. The work is under the immediate direction of Fred S. Porter, Superintendent of Construction for the Board of Water Commissioners.

Replacement

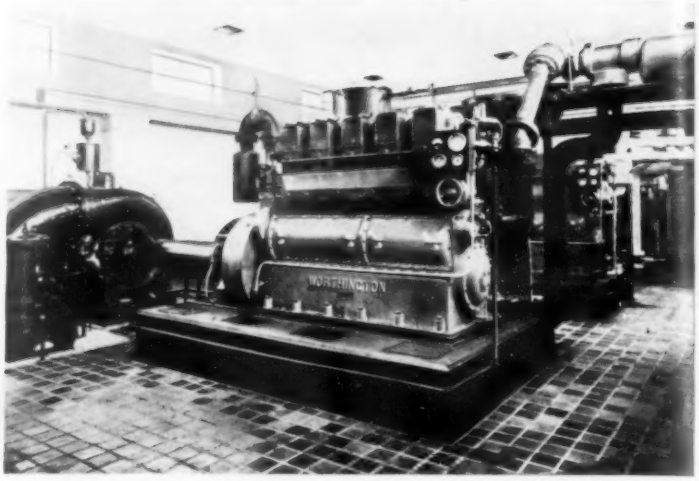
By BRENNAN S. THOMAS
General Manager and Chief Engineer
Long Beach Water Dept.

Workmen then scoop out the broken concrete so that the ditching machine can dig the necessary trench.

After the ditching operation comes the work of pipe-laying.

A tractor with a bucket then scoops the dirt back into the ditch as handily as the ditcher removed it.

Gary's 1947 Sewage-Works Record



Three Worthington 175-hp gas engines, driving 20-mgd pumps.

The plant serving the Gary, Ind., Sanitary District tops all previous records in solids removal and maintains high percent of oxygen-demand reduction in the seventh year of operation

THE seventh year of the Gary, Ind., Sanitary District's big main sewage-treatment plant has rolled up a new set of operating records. The plant broke all records for solids removal and made its second best showing in oxygen-demand reduction, while handling its fourth highest volume of sewage.

The district's main plant provides activated-sludge treatment and is designed for a population of 170,000 and a flow of 40 mgd. It has three 20-mgd Worthington pumps driven by Worthington gas engines. The pumps are protected by five 25-inch Chicago Pump Company comminutors with a total capacity of 60 mgd.

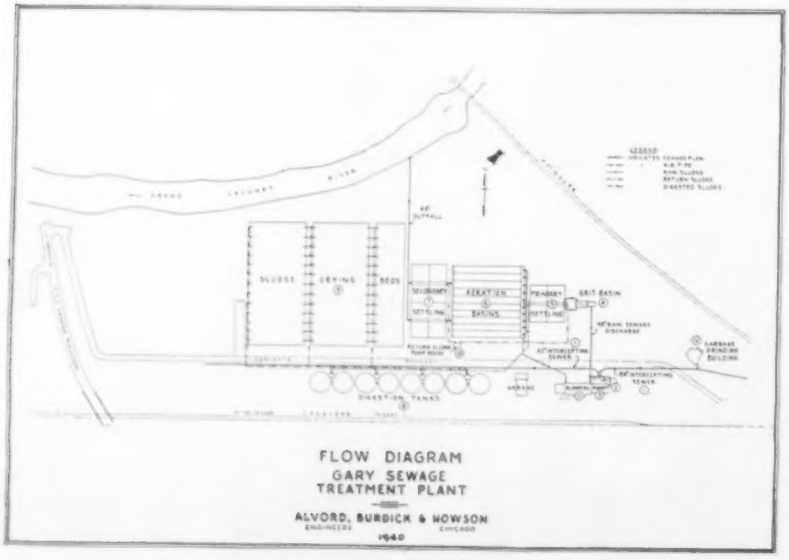
The pumps lift the sewage to two Link-Belt grit chambers with screw conveyors where it flows by gravity through the rest of the plant. The grit chambers provide 1½ minutes' detention.

Plant Clarification

The plant provides primary clarification in four 75-foot Dorr clarifiers with a detention period of 1 hour at 40 mgd. Ten aerators of the straight-flow-through type give 6 hours' detention at design flow, not including return sludge. At present only five aerators are used. Aeration is through 3-inch-by-24-inch Chicago Pump Company diffuser tubes of the fixed type, spaced alternately on 16-inch centers on a 12-inch to 6-inch header.

Final clarification is in eight Dorr secondary clarifiers similar to those used for primary treatment. Detention period is 2 hours. The settling rate is 900 gpd per square foot. Overflow rate is 11.67 gpm per lineal foot of weir. Three motor-driven Fairbanks-Morse centrifugal pumps with capacities of 2,310, 2,150 and 5,040 gpm each are used to return sludge to the areators and excess sludge to the primary clarifiers.

To handle the sludge, the plant has eight Dorr-equipped digestion tanks in the multidigestion system, all 90 feet in diameter with side-wall depths of 20 feet. Five of these tanks are used as primary digesters. These are covered with flat concrete roofs and heated. The other three are operated as secondary digesters and have self-contained gas holders of 60,000-cubic-foot capacity and are not heated. The capacity of all the digesters is equivalent to 6½ cubic feet per capita for the 170,000 design population. Sludge-drying facilities consist of 65 drying beds measuring 42 by 125 feet.



A flow diagram of the Gary sewage-treatment plant.

Aeration Provided

Aeration is provided by two 7,000-cfm Roots-Connersville rotary positive displacement blowers, connected directly to 300-hp Cooper Bessemer gas engines, and three motor-driven Elliott Company centrifugal-type blowers with capacities of 5,000, 7,000 and 9,000 cfm each. The air is filtered by American Air Filter Company oil reservoir filters and secondary cellulose filters.

This last year the plant pumped its fourth highest volume of sewage. The

average went to 19.9 mgd, or 198.6 gallons per capita per day.

In treating this smaller volume, the plant broke a record in removing suspended solids. It took out 10,657 tons, averaging 0.199 pounds per capita daily. It had its second largest removal for any one year of five-day BOD, amounting to 4,422 tons. This averaged 0.207 pounds per capita per day.

The gas production was the largest in the past seven years, averaging 1.6 cubic feet per capita per day. In terms of solids added it amounted to 2.7 cubic feet per pound. In terms of volatile solids added, it averaged 5.2 cubic feet per pound. The value of the gas used was the largest for any year to date, running to a figure of $24,062.92.

The amount of air blown was less than in any previous year except one. It figured the equivalent of 0.46 cubic feet per gallon of sewage treated.

The removal of suspended solids ranked third in seven years at a figure of 98.32%. The removal of five-day BOD equals the 1946 record and ranks fifth in the seven years of operation with a figure of 92.99. The raw sewage averaged 360 ppm suspended solids and 160 ppm five-day BOD.

Gary's pump and blower house building.

The Gary Sanitary District operates under a Board of Sanitary Commissioners. These include Otto V. Gray, Harold E. Beine, and William P. Cottingham. W. W. Mathews is superintendent. The data are from his 1947 annual report.

New Pool at Tifton's Recreation Center

By FRANK H. SMITH
City Manager
Tifton, Ga.

TIFTON, GA., opened a new swimming pool during the latter part of June as part of an enlarged recreational service.

The new swimming facilities at the Tifton Recreation Center site are the largest and only standard ones in South Georgia for conducting all types of national swimming meets, which are required for the national and international swimming records. The pool measures 20 by 50 meters (about 65 feet wide and 164 feet long), and will accommodate 1,500 swimmers per day. It holds 375,000 gallons of water.

The $12,000 filter system will clean the water every eight hours. Each of the three Permutit filters has a capacity of 259 gpm. The water is chlorinated and recirculated. The 375,000 gallons of water remain in the pool at all times.

The water line reaches to the automatic skimmer line, where the water is splashed and drained out. There are also numerous small outlets at the low level to allow the surplus to pass.

The Westinghouse underwater lighting system combined with the sea-green enamel paint provides a beautiful, restful, and soft atmosphere. The enameling totalled a cost of $1,150 and the pool is equipped with outside floodlights which can be seen for a great distance.

The depth of the pool is 3 feet in the shallowest part and 12 feet in the deepest end. The equipment at the pool includes the usual diving boards and lifeguard stands. In addition, there is a separate shallow wading pool for very small children. The wading pool is fed by a fountain spray, which insures continuous pure water.

In addition to the swimming-pool plant itself, the pool project includes showers and dressing and rest rooms, a canteen and snack bar, and a dance pavilion. All are constructed of concrete brick and are in harmony with the pool itself.

During the first two weeks of operation there was a total of 7,983 people in the pool—2,474 adults and 5,509 children. The ticket sale for the first two weeks amounted to $1,493.46, the price of tickets being 14 cents for children and 30 cents for adults. Sales at the canteen snack bar amounted to $674.86 during that period. The largest attendance at the pool, excluding the opening day which was free, was on the first Wednesday, when 916 tickets were sold.

The writer is chairman of pool operations; City Engineer D. D. Hurst is in charge of mechanical operations.

Tifton's popular new swimming pool.

How Briarcliff Manor

Any small community intent upon the development of a planning program should note with interest how Briarcliff Manor went to its people for facts and opinions. To get the information necessary, it drew on its own resources and those resources immediately available through the Westchester County Department of Planning and the Research Department of *Time* Magazine. Other communities might well adopt a similar approach, and undoubtedly could obtain guidance and technical assistance from state agencies or colleges and universities.

By ROBERT BARTELS
Westchester County Department of Planning
and
FRANK A. STEWART
Time Magazine

PLANNING officials of Briarcliff Manor, N. Y., a small suburban community of 2,000 people in Westchester County, recently decided to "ask the people" for the information needed in developing a planning program and new Master Plan.

This information, obtained from house-to-house interviews, included responses to many opinion questions as well as factual data such as that collected in the regular federal census. In this manner, data and opinions which might otherwise be unrecorded became known and are being put to good use.

In 1947, Briarcliff Manor's Planning Board was faced with resurgent growth and an old, ineffective, 1928 model master plan. The Board undertook to prepare a new master plan with the aid and guidance of the Westchester County Department of Planning.

Since there was little or no up-to-date information available concerning the people of the village, such as the number, age and sex distribution, place and kind of employment, etc., the Planning Board determined first to make a complete census of the village.

Opinion Questions Included

As it was necessary to visit each household to obtain the factual data, it was apparent that other information which would give the Planning Board a clearer picture of citizens' thinking on village problems could also be secured at the same time.

The citizens were asked their opinions on such matters as which community problem or need should receive first attention by the Planning Board and who might best serve on advisory committees being organized to help the Planning Board. Specific questions relative to the development of certain parts of the plan were also asked.

In developing the survey as a community project, the Planning Board worked closely with the Village Board of Trustees, the School Board, and various civic organizations. Questions were included that, when answered and analyzed, would give each individual organization additional information for its own use.

Forty-seven women, virtually the entire membership of Briarcliff Manor's League of Women Voters, were recruited to conduct the interviews. They were given a short lecture on interviewing techniques and an explanation of the questionnaire. Each interviewer further familiarized herself with the questionnaire by filling one out for her own household.

The wide public participation in the preparation of the questionnaire meant that a large portion of the community already appreciated the reasons for the coming survey. However, to be sure each citizen was aware of the project in advance, the Planning Board had a leaflet printed explaining the purpose of the interview. Copies were mailed to all residents of the village, reprinted in the local newspaper, and posted in public places.

Advance Publicity

In addition, each interviewer delivered a copy of the leaflet to each house in her section prior to the interview. The community received such thorough advance notice and explanation of the survey that there were only a few families who refused to answer all the questions. However, the census information was obtained for all the families in the village.

The survey was completed in less than one month, with the expenditure of over 1,000 man-hours of interviewing time. Perhaps half that much additional time was spent by the planning committees, students of Briarcliff Junior College, and the members of the League of Women Voters in editing, coding, and tabulating the questionnaires.

Practical Uses of Results

The data collected by means of the survey have been put to immediate use by the Planning Board as well as the other sponsors. For example, the information on shopping habits and desires of the citizens were used in development of a plan for the village's shopping center. It also served to guide the presentation of the completed plan to the public.

The committee working on the preparation of a new zoning ordinance also found valuable information in the survey material.

The survey has given planning officials and other officers of the village a factual picture of the village, its people, and their attitudes that could not have been obtained in any other way.

What the Study Included

The Briarcliff Manor study — based on a house-to-house canvass conducted during the first two weeks of November 1947—consisted of:

1. A census of population—covering sex, age, race, veteran status, marital status, education, employment, place of work, and migration since 1940;

2. A census of housing—covering number of dwellings, type, occupancy, tenure, number of rooms, and rental value;

3. A community survey — covering residence intentions, shopping habits, and opinions about the village's needs.

Only the results of the community-survey questions are reported here, since they presumably are of broader interest than the other phases of the study. These questions were asked only of persons living in regular households. There were 506 family units in Briarcliff Manor at the time of the survey. This number is used as the base for these summaries. (The few families that were not interviewed are included in the "no answer" group.)

Summarized Results with Questions Used

● Only 75 of Briarcliff's 506 families report they expect to move to another home by 1950.

Question—Will your family remain in your present home or do you plan to move to another home by 1950*—that is, within the next* 2½ *or* 3 *years?*

Will definitely remain	54.9%
Likely to remain	23.3%
Likely to move	11.1%*
Will definitely move	3.8%*

Took Inventory

No answer	6.9%

* Of these, 63% plan to move elsewhere in Briarcliff Manor, and three out of four of that percentage expect to buy or build.

● New residential construction in the village should be single-family houses, with a sprinkling of garden apartments, in the opinion of the residents.

Question—It looks now as though Briarcliff Manor will increase considerably in population during coming years. This means that many new houses and residences will be built. Do you think all, mostly all, a few, or none of them should be . . .

	Single-Family Houses	*Two-Family Houses*	*Garden Apartments*
All	22%	—%	1%
Mostly all	55%	2%	3%
A few	9%	31%	52%
None	2%	54%	31%
No answer	12%	13%	13%

● There is little sentiment for changing the character of the community.

Question—Do you want Briarcliff Manor to remain almost exclusively a residential community, or do you think industries should be encouraged to come in?

Remain residential	74%
Encourage industries	11%
No answer	15%

● Pluralities of these householders favor the extension of the local school program to include a publicly supported nursery school, an adult-education program, and a vocational-training course. But they are not so favorably inclined toward a summer camp, and vote overwhelmingly against a junior college (there are two private junior colleges now in the village).

Question—Would you like to see Briarcliff Manor's school program extended to include a publicly supported . . .

	Should Have	*Shouldn't Have*	*No Opinion or No Answer*
Nursery School	35%	31%	34%
Junior College	14%	45%	41%
Summer Camp	25%	35%	40%
Adult Education Program	38%	28%	34%
Vocational Training	40%	24%	36%

	Believe is most needed	*Feel strongly is not needed*
Nursery School	86 votes	53 votes
Junior College	10 votes	72 votes
Summer Camp	40 votes	26 votes
Adult Education	35 votes	5 votes
Vocational Training	84 votes	6 votes

● The vote is four to one against having a private airport in the village.

Question—Would you approve of having a small private airport in Briarcliff Manor?

Yes	18%
No	68%
No answer	15%

● The people recognize that the village needs several new businesses. A restaurant and a supermarket are especially needed and, according to the vote, desired. A bank, a movie theater, and a gift and florist shop also are desired, but by lesser margins. Other types of business find less favor.

Question—Do you think we should or shouldn't have these particular kinds of stores?

	Should Have	*Shouldn't Have*
Restaurant	333 votes	71 votes
Supermarket	293 votes	97 votes
Branch bank	223 votes	141 votes
Movie theater	216 votes	163 votes
Gift and florist shop	175 votes	164 votes
Branch—N. Y. dept. store	152 votes	233 votes
Variety (10c) store	135 votes	223 votes
Auto supply	104 votes	248 votes
Branch—N. Y. spec. store	89 votes	258 votes
Tavern	47 votes	317 votes

These votes reflect both need and preference. There is no tavern in the central part of Briarcliff now, for example, and one is not desired.

● The favorable vote for a supermarket, however, is clearly based on need—as indicated by the fact that 50% of the families do 60% or more of their weekly food buying elsewhere, against only 17% who buy this much of their food in Briarcliff. Indeed, the general pattern is that of extensive shopping outside the village.

Question—Can you tell me the names of the stores of all kinds in and outside of Briarcliff Manor which you patronized during the past week?

	Number of Families
(a) *In Briarcliff*	
Pharmacy	169
Grocery store	147
Stationery store	131
Hardware store	93
(b) *Outside Briarcliff*	
Food and supermarkets:	
In Ossining	292
Pleasantville	148
Other stores:	
In Ossining	395
Pleasantville	85
White Plains	207
New York	141
Other places	37

● The interviewees were given two "open" questions as opportunities to speak freely about village facilities and needs.

Question—Have you any specific recommendations to offer for changes, improvements, enlargements, new facilities, in regard to the following? (a list of 12)

Question—Now in thinking over all the village's needs, including any we may have overlooked, what one or two things do you think should be given first attention over anything else?

● The answers varied widely, but the following were the most frequently mentioned as needing early or immediate attention:

Business district (improve, bring in more stores)
Housing (encourage, build garden apartments)
Zoning (study carefully and revise)
Garbage (improve collection)
Water system (install softener)

● The survey helped to validate a major advantage that Briarcliff Manor was believed to possess, i.e., the interest of many of its citizens in planning and improving the village. Over half of the respondents reported that they taked about such matters, either frequently or occasionally.

Question—Do you ever talk among your own friends about how Briarcliff Manor should grow and what community services and improvements it will need?

Yes, quite a bit	20%
Yes, occasionally	32%
Rarely, if ever	30%
No answer	18%

● Finally, the survey helped identify individuals who could be interested in various types of community work incident to the Planning Board's projects.

Question—And who among your own friends would you say has particularly good ideas about these things?

In response to this question, 76 men and 70 women were named. Of these, 50 were mentioned by two or more respondents, thus providing a sizable group from which to draw talent for the Planning Board's additional committee needs.

FHA Data Sheets On Subdivisions Available

NEW data sheets on subdivision exhibits for incorporation in local editions of FHA Land Planning Bulletin No. 3, "Neighborhood Standards," may be obtained on request to local offices of the Federal Housing Administration. The sheets are intended to help subdivision sponsors and their technicians in preparing exhibits which will permit the FHA to render more rapid service on proposed residential developments.

The suggested procedures and technical data in the data sheets have been derived from extensive experience under widely varying conditions. In some cases they may be helpful to local planning officials in preparing and administering their regulations controlling land development. They are generally adaptable to the procedures customarily found in local subdivision regulations and may be used by local authorities as a basis for their own procedures.

Minimum Water-Rate Charges

What is the correct place for a minimum water rate in good water works practice?

MINIMUM rates represent that junction point between two important functions of the water utility. On one side we have the basic function of water service, that of improving the health and sanitation of the community. Accomplishing this goal requires that a certain volume of water be supplied to each household for sanitation purposes. On the other side we have the need to provide this service in an economical, efficient manner, without waste of a valuable natural resource. The use of meters provides this safeguard.

The minimum charge therefore resolves itself into the quantity of water that will insure reasonable sanitation standards and yet not allow wasteful water practices.

Service Charge

The "service charge" is the foundation on which the minimum lies; it is a measure of "readiness to serve" that forms a part of waterworks overhead whether any water is used or not. This service charge generally meets the cost of depreciation of water mains and the cost of billing the customers, and is independent of any water-use factor.

If the meter rates are set up on this basis, the factor of service is listed separately, as is the factor covering the use of water. Thus the customer is encouraged to keep the use of water at a figure that does not induce waste. The rate schedule ignores the factor of minimum sanitation needs.

However, although it may be financially good for the water works, it often is confusing to the customer. E. E. Norman, manager of the Kalamazoo, Mich., Light and Water Service, has this to say about it:

"In dealing with the public, we have found that it is almost suicidal to talk about a service charge. The average man does not and will not understand such a thing as a service charge. We have found, however, that we can quote rates that incorporate the service charge in the minimum and have the public accept them gracefully."

For a ⅝-inch meter the Kalamazoo published rates read as follows:

First 100 cu. ft. ..	$0.88
Next 9,300 cu. ft. ..	.08 per 100 cu. ft.
All over 10,000 cu. ft.	.06 per 100 cu. ft.

This, as Mr. Norman points out, could be more simply stated as follows:

Service Charge per quarter	$0.80
First 10,000 cu. ft. .	.08 per 100 cu. ft.
All over 10,000 cu. ft.	.06 per 100 cu. ft.

The factors are all there, Mr. Norman explains, and he is saved from the difficulty of explaining what a service charge means to an indignant customer who insists that he hasn't had any service.

Most water works use the minimum charge rather than the service charge system. But few agree where the minimum figure should lie that allows basic sanitation needs. Some hold that 9,000 gallons per quarter is a minimum that each average small family served through a ⅝-inch meter should be entitled to use before rates increase the bill. Others feel that 6,000 gallons per quarter should be enough. Figuring a daily use of 50 gallons per capita and basing the use on a family of two, one gets roughly 9,000 gallons per quarter, which would seem to be a fair place to begin the minimum.

In fact it would mean that larger families would require going into the metered blocs in order to obtain their portion of water necessary for good health and sanitation.

A final consideration covers the increase in this minimum for the larger water users. As the size of the meter increases, the "demand factor" also increases. L. R. Howson, of Alvord, Burdick, and Howson, has outlined this as follows:

Meter Size	*Demand Factor*
⅝ inch	1
¾ "	1.5
1 "	2.5
1.5 "	5.0
2 "	8.0
3 "	15.0
4 "	25.0
6 "	50.9

Minimum bills do not always vary with the same mathematical precision as does the demand factor outlined by Mr. Howson. E. W. Moke, outlining the charges a few years ago as they affect the minimum bill and the service charge alone if the rates are set up that way, averaged the minima in 100 cities and arrived at these factors:

Meter Size	*Minimum Bill Factor*	*Service Charge Factor*
⅝ inch	1.0	1.0
¾ "	1.2	1.2
1 "	1.8	2.0
1½ "	3.0	3.6
2 "	4.0	5.5
3 "	7.0	10.8
4 "	10.0	17.3
6 "	18.0	32.4

Consequently we can say that a service charge coupled with a metered rate is a clean, efficient way to handle water metering but often is confusing to the customer.

We can observe further that the minimum charge can incorporate handily the service-charge feature and be accepted by the water-works customer.

We can see in addition that the water user should be entitled to some recognized amount of water per quarter, between 6,000 and 9,000 gallons, for general sanitation needs, and that these minima should be increased as the meter size increases.

Rates for Various Cities

Fergus Falls, Minn.

Rates Per Month Base Charge	
⅝" meter	$0.50
¾" "	0.85
1 " "	1.35
1¼" "	1.85
1½" "	2.50
2 " "	4.00
2½" "	6.00
3 " "	8.00

Rate for water use is 10 cents per 1,000 gals. The city pays the water department $3,000

per year for public fire service. No charge is made for sprinklers or private fire protection.

General Data

Population served	14,000
Services (100% metered)	2,286
Hydrants	171
Valves	233
Miles of mains	30
Supply	River
Treatment	Softening
Demand	1.5 mgd
Plant capacity	3.5 mgd

Water Characteristics	*Raw*	*Tap*
$CaCO_3$	200 ppm	70 ppm
Fe, Mn		
pH	9.1	9.2
Temperature	33-78° F.	

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$0.30*
5,000 " (667 cu. ft.)	0.50*
10,000 " (1,333 cu. ft.)	1.00*

* Plus Base Charge.

The billing method is the base charge plus the amount of water used.

HOWARD J. SOWDEN
Superintendent

Bellevue, Ohio

Rates (on quarterly basis)

Minimum Charge—$3.50 payable in advance includes 700 cu. ft. of water.

Next	6,300 cu. ft.	20c per 100 cu. ft.
"	13,000 cu. ft.	15c " " " "
"	80,000 cu. ft.	11c " " " "
"	100,000 cu. ft.	10c " " " "
"	800,000 cu. ft.	8c " " " "
"	1,000,000 cu. ft.	7c " " " "
"	2,000,000 cu. ft.	6c " " " "

The water department receives $150 per year for public fire protection.

General Data

Population served	6,969
Services (100% metered)	1,856
Hydrants	143
Valves	132
Miles of mains	25
Supply	River
Storage, ground	985 mg
Storage, elevated	450,000 gals.
Treatment	Rapid sand filter
Average demand	1.5 mg
Plant capacity	2.0 mg

Customer Costs (pro-rated per month)

3,000 gals. (400 cu. ft.)	$1.50
5,000 " (667 cu. ft.)	2.03
10,000 " (1,333 cu. ft.)	3.37

The Water Works Fund contributes the sum of $1,200 annually to the General Fund as rent for the City Hall wherein there is located the collection center for water rates.

ROBERT L. J. WAGAR
Superintendent of Water

Little Falls, N. Y.

Rates

Minimum Charges

5/8" meter	$12.00
3/4" "	17.00
1 " "	24.00
1½" "	46.00
2 " "	77.00
3 " "	165.00
4 " "	275.00
6 " "	550.00
8 " "	880.00

To this is added a frontage charge of 2 cents per lineal foot. Hydraulic elevators shall carry a flat charge of $60 which is not deducted from meter rates.

Meter Rates

All users assessed the flat rates shall be entitled to use without further costs the amount of water that the meter rates shown below will purchase. All water used in excess of such quantity shall be paid for at the said meter rates.

First	25,000 cu. ft.	16c per 100 cu. ft.
Next	25,000 cu. ft.	13c " " " "
"	25,000 cu. ft.	10c " " " "
"	25,000 cu. ft.	7c " " " "
"	2,000,000 cu. ft.	5c " " " "
All over		4c " " " "

General Data

Population served	12,000
Services (100% metered)	2,019
Hydrants	203
Valves	359
Miles of mains	21
Supply	Creeks and springs
Treatment	Chlorination

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$1.00
5,000 " (667 cu. ft.)	1.07
10,000 " (1,333 cu. ft.)	2.13

These rates went into effect May 1, 1947. A 5% discount is allowed for prompt payment.

There is no hydrant-rental or fire-protection charge, nor does the department make a payment to the General Fund. The department does contribute approximately $2,700 in free water to schools, churches, and municipal buildings.

R. D. AUSTIN
City Engineer

East Orange, N. J.

Rates Per Month

First 50,000 cu. ft.	$2.00 per 1,000 cu. ft.
All over	1.80 per 1,000 cu. ft.

Minimum Charges Per Quarter Year (Consumers):

5/8" meter	$ 2.00
3/4" "	4.80
1 " "	7.20
1½" "	18.00
2 " "	24.00
3 " "	54.00
4 " "	78.00
6 " "	150.00
8 " "	240.00

Fire Line Meters	*Rates Per Year*
3 " meter	$ 15.00
4 " "	21.00
6 " "	39.00
8 " "	60.00

The cost for repairing a frozen 5/8-inch meter is $5.40.

The cost of repairing a 5/8-inch meter damaged by hot water is $5.40.

Consumption is in 100 cubic feet.

General Data

Population served	75,000
Services	10,844
Meters	10,716
Hydrants	1,043
Valves	2,412
Miles of mains	125.49
Service levels	4 ft.
Treated ground storage	10 mg
Treatment	Chlorine, as of July 7, 1947
Average demand	6.2 mgd
Plant capacity	10 mgd

Water Characteristics

(All water is treated)

$CaCo_3$	51.6
Fe	Trace
Mn	
pH	7.6
Temperature	Winter 52° F. Summer 66° F.

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$ .80
5,000 " (667 cu. ft.)	1.33
10,000 " (1,333 cu. ft.)	2.67

The water department receives no payment from the city for fire protection in the form of hydrant rental. The department charges the city for water used in the various city offices and pays the city for building rental.

ROSWELL ROPER
Water Engineer

Beckley, W. Va.

Rates Per Month

First	2,000 gals.	62.5c per 1,000 gals
Next	3,000 "	55c " " "
Next	20,000 "	50c " " "
Next	125,000 "	30c " " "
Next	850,000 "	25c " " "
All over		20c " " "

A discount of 5% is allowed for prompt payments. Out-of-city customers pay 75c for the first block.

General Data

Population served	35,000
Services	8,309
Meters	7,940
Hydrants	155
Miles of mains	145
Storage, ground	560 mg
Storage, overhead	gals. 3,335,000
Supply—river	
Treatment—lime, alum, calgon	
Average demand	1.7 mgd
Plant capacity	2 mgd

Customer Costs Per Month

3,000 gals.	$1.80
5,000 "	2.90
10,000 "	5.40

The company makes a hydrant rental charge of $50 per hydrant per year, and a sprinkler rate of $100 per year for each 6-inch sprinkler top with no limit to the number of heads.

CHARLES C. FARMER
Secretary-Treasurer
Beckley, W. Va.

Cedartown, Ga.

Rates

First	500 cu. ft.	40c per 100 cu. ft.
Next	1,500 cu. ft.	30c " " " "
"	4,000 cu. ft.	25c " " " "
"	4,000 cu. ft.	20c " " " "
"	10,000 cu. ft.	16c " " " "
All over		12c " " " "

Minimum Charge

5/8" meter	$2.00 per month
3/4" "	2.00 " "
1 " "	4.00 " "
1¼" "	4.65 " "
1½" "	5.35 " "
1¾" "	7.30 " "
2 " "	13.35 " "

General Data

Population served	11,000
Services (100% metered)	2,500
Hydrants	200
Valves	400
Storage (incl. standpipe)	1,760,000 gals.
Supply	Spring
Treatment	Chlorine
Average demand	1.5 mgd
Plant capacity	4.3 mgd

Customer Costs

3,000 gals. (400 cu. ft.)	$1.50
5,000 " (667 cu. ft.)	1.87
10,000 " (1,333 cu. ft.)	3.37

The department neither takes credit from nor charges the fire department for water used nor is there a charge for private hydrant or sprinkler systems.

J. E. RAINWATER
Superintendent Water Works

Improvement of Omaha Progresses Rapidly

Under Plan Adopted In 1946

WHEN the City of Omaha, Neb., received its "blue print for the future"—an improvement and development plan which was described in the May 1946 issue of THE AMERICAN CITY—it went to work without delay, and a recent progress report shows that much has been accomplished.

The Plan was completed early in 1946 after 6 months' study and work by 17 different committees, comprising 168 civic-minded men and women who devoted their time and efforts without compensation under the leadership of Russell J. Hopley, President of the Northwestern Bell Telephone Company, who is now serving as Director of Civil Defense Planning on the staff of Secretary of Defense Forrestal. Mr. Hopley was general chairman of the Mayor's City-wide Planning Committee, which included the 17 specialized committees mentioned.

The previously existing City Planning Commission also had an important part in the work. Most of its members served on the various planning committees and the Commission is now active in carrying out the Plan.

A description of the Plan was printed in illustrated book form for the information and guidance of those who were charged with the responsibilities of explaining the Plan to the public. Both the Plan and the book, which became widely known as the "Omaha Blue Book," attracted so much attention that the Planning Committee was deluged with requests for copies of the book with the result that a copy has been furnished, on request only, to major cities throughout the United States and to the governments of many foreign countries.

As soon as the Plan was completed, the Mayor selected a group of Omaha citizens to explain it to the public and to urge support of bond issues totaling $14,813,500 required to carry it out. At a city election on November 5, 1946, the Plan was presented to the voters and most of its provisions, including bond issues of $12,121,000, were approved by substantial majorities.

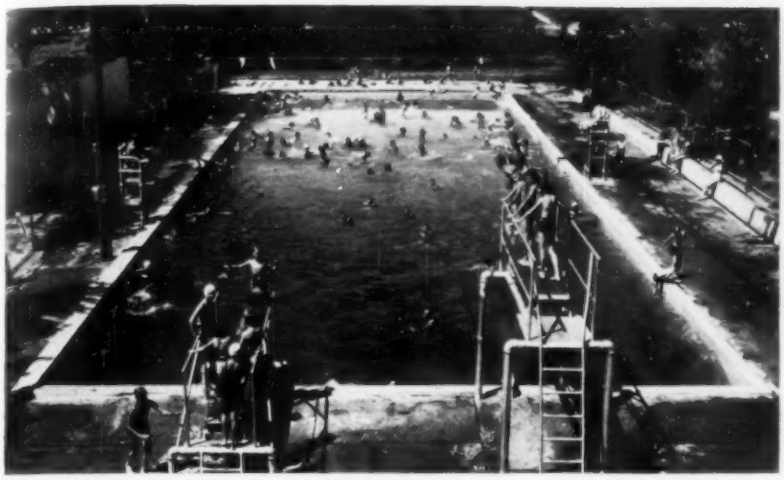
Since then, according to a July 1, 1948, report by Lloyd H. Mattson, President of the Omaha Improvement Commission, and J. Mitchell Garrison, Manager of the City Planning Commission, accomplishments under the Plan are as follows:

● OMAHA MUNICIPAL AIRPORT. Approximately 100 acres of additional land has been acquired, at a cost of $71,275, to enlarge the field and provide space for runway extension. Two pumps, with a combined capacity of 10,750 gallons per minute, which were needed for drainage, have been purchased and installed at a cost of approximately $15,000. Westinghouse runway lights have been installed at a cost of $15,000 on existing runways. The administrative building has been enlarged at a cost of $28,000; bids have been received for the contruction of 38 T-Hangar units, and bids have been asked for construction of a new 7,000-foot runway which is expected to cost about $700,000.

● OMAHA CITY AUDITORIUM. A contract for the drawing of plans and specifications for the building has been approved, and the City Council has instituted proceedings to acquire the site recommended by the Plan.

● ARTERIAL HIGHWAYS. A limited access highway to the wholesale district is scheduled for 1949 construction. The design for this highway has been completed and an engineering project report will be completed in October 1948. Plans have been completed also, and work sceduled to be started in 1949, on the widening of parts of Leavenworth Street, Railroad Avenue, and "Q" Street for the construction of a new reinforced concrete viaduct from 26th Street to 27th Street with pavement width of 60 feet. Bids on this job will be asked for next winter. Also scheduled for construction in 1949 and 1950 is the relocation of state highways 28 and 38, including a considerable amount of improvements through widening and realignment. In June work was started on a $359,000 widening, grading, and repaving project on Dodge Street, and in 1949 a similar project in Farnam Street will relieve a serious bottleneck. Also scheduled for 1949 construction, and with engineering 65% completed, is a grade crossing elimination

New Fire-Fighting Equipment: **Here are shown four of the eleven fire trucks purchased this year by the City of Omaha under its improvement and development plan. A new fire station has been built and another is under construction.**



Morton Park Swimming Pool. **Under Omaha's improvement and development plan, this pool was reconstructed and equipped with a diatomite filtering system, a recirculating pump and new bathhouses. Opened for service this year, it "played" to a capacity crowd of children throughout the summer.**

at 30th & Boyd Streets, which is estimated to cost $200,000, one-half to be paid by the City of Omaha, and one-half by the Federal Government. A considerable number of traffic control signals also have been purchased and installed in the last year.

● Fire-Fighting Equipment. The Omaha Improvement Commission has authorized $50,000 in fire equipment bonds for the purchase of miscellaneous fire fighting equipment and also approved the purchase of 11 fire trucks of the Mack, American-LaFrance, and Four-Wheel Drive makes.

● Fire Stations. A new fire station has been constructed at 27th and Madison Streets at a cost of about $40,000, and another fire station, which will cost about $92,000, is under construction at 25th and "L" Streets.

● Police Equipment. The Omaha Improvement Commission has authorized $100,000 in police equipment bonds; and cars, trucks, radio transmitters, spotlights, and other equipment costing approximately $22,000 already have been purchased. Bids have been received on additional equipment which will cost about $78,000.

● Port and Terminal Facilities. The Omaha Improvement Commission authorized $100,000 in bonds for permanent loading and unloading facilities at the Missouri river port. An $85,000 war surplus Gantry crane was purchased for $9,850, plus dismantling charges of $6,440, plus transportation and unloading at the Omaha dock site, and this crane is now in service. Work has been completed on the installation of 1,460 feet of 90-pound railroad trackage at the dock site at a cost of $7,758; a new reinforced concrete grain elevator at the dock site is 30% completed, and the new river port dock and terminal facilities are about 40% completed.

● Sanitation. Sewer bonds, voted at the November 1946 election, totaled $2,090,000. The first project undertaken by the Sanitation Commission was broken into three contracts, one of which has been completed at a cost of $213,166. Engineering is 100% completed on one of the other two parts of the projects, and 50% completed on the third.

● Parks and Recreation. The Omaha Improvement Commission authorized the sale of $300,000 in bonds for the first 10 projects to be undertaken by the Park and Recreation Commission. Since then, 8 new tennis courts, enclosed with chain link fence, have been completed at one tennis center, and a chain link fence has been installed around 4 previously existing courts. Other park and playground improvements, completed or under way, include a softball diamond with backstop and bleachers (completed); a softball diamond staked and graded and lighted; reconstruction of a swimming pool and installation of a new Refinite diatomic filtering system and recirculating pump and motor, and new bathhouse and other facilities (completed); another swimming pool is under construction and scheduled for opening in 1949. In addition, a master plan for the improvement and development of Carter Lake is about 65% completed, and engineering for improvement and development of a number of parks and playgrounds is under way.

High Costs Require Additional Bond Issues

"It is regrettable," Mr. Mattson said, "that in the one and a half years the Omaha Improvement Commission has been in effect we have not been able to progress faster in carrying out our Plan. However, considering the facts that costs on many of the projects have increased 50 to 100 per cent above the 1946 estimates and that we have had difficulty in hiring a sufficient number of competent engineers, I think we have reason to take pride in what has been accomplished.

"Of the $12,121,000 of bonds voted, we have authorized $3,096,000 to cover the expense of the necessary engineering and construction work, the cost of which to date has been $2,341,000. With the preliminary engineering work out of the way, more rapid progress can be made in carrying out the projected improvements. However, because of the great increase in costs, it will be necessary to ask the voters for additional money to carry some of the projects to completion. This applies particularly to the sewer and the City Auditorium projects and, to a lesser extent, to several of the others."

Omaha Municipal Airport. **This view shows existing runways on which elevated lights, one of which is shown in the inset, were recently installed at a cost of $15,000. A new 7,000-foot runway is scheduled to be constructed soon.**

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

Charleston MPR in 26th Year

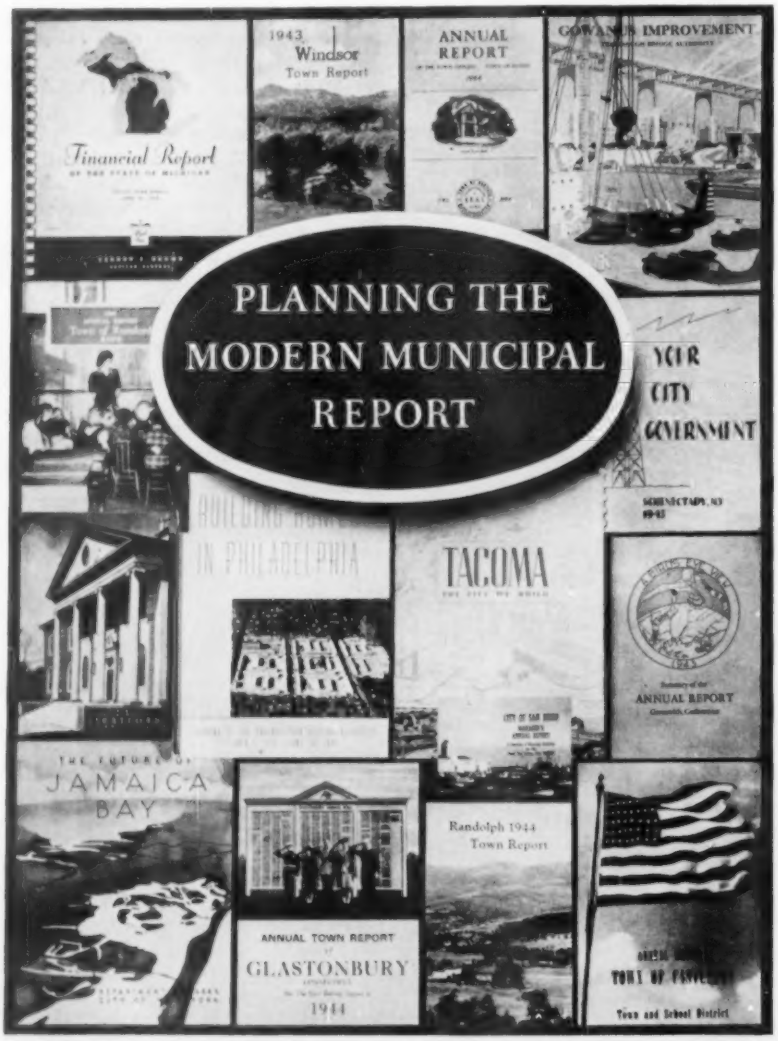
THE city of Charleston, S. C., has one of the oldest, if not the oldest, municipal public relations agency in the country. From the beginning Charleston's MPR office has been run by one man, and from what I hear he has been doing a remarkable job for more than 25 years.

Henry F. Church, Director, Office of Port and Public Relations, is the man. Mr. Church operates directly under the office of the Mayor and, next to the Mayor, I would say that this MPR Director is "Mr. Charleston."

Mr. Church describes his position briefly as follows:

"Except for the rather broad scope of its operations and its somewhat unique record of having served five consecutive administrations under as many mayors, this office, now in its 26th year, follows the usual routine pattern of a community trouble-shooter."

The department was set up in June 1923 as the Bureau of Foreign Trade and Port Development, with Mr. Church as Assistant Commissioner handling the publicity and public relations for both the city and the port. Reorganized in 1929, the office became strictly a public relations agency with Mr. Church as director.



Attractive front cover (red, black and white) of the 44-page, 8½ x 11-inch, plastic-bound book on municipal reporting produced by The Mead Corporation.

This very active MPR agency handles the promotion of tourist trade; general research and preparation of statistical surveys and industrial briefs, with special reference to the development of the Charleston Municipal Airport; preparation and pleading of cases before the Civil Aeronautics Board, Interstate Commerce Commission, and other federal and state agencies, where the interests of Charleston are concerned; liaison between the city and the naval and military units in the area; official entertainment; protocol; the preparation of maps and illustrations in connection with city publicity releases; the direction of the special advertising fund appropriated by the City Council, and the carrying out of such incidental activities as may be assigned by the Mayor where not otherwise covered by the routine of other municipal departments. The MPR office also serves as a clearing house for the routine business of certain civic activities sponsored by the city government and headed by the Mayor, and it assumes the secretarial duties incident to this work.

With all that in his scope, MPR Director Church operates with one secretary-stenographer. He points out that the office was formerly "over-staffed with seven persons," but that its volume of work has remained constant. By strict economy, he writes, his department operates on a budget of about $15,000 annually.

Annual Budget

You may be interested to see the breakdown on this budget, which Mr. Church included in his letter. It follows:

Director	$5,152.03
Secretary-Stenographer	2,129.79
Extra janitor help	70.00
Office rent	660.00
Advertising	5,000.00
Emergency Fund	1,200.00
Printing, Office Supplies, Stamps	350.00
Maps and briefs	300.00
Telephone and Telegraph	250.00
Total	$15,111.82

Mr. Church says it is his opinion "that much of the successful work of this office has been largely due to the cooperation of five progressive mayors

under which it has served, and with the help from other civic organizations, especially the Charleston Chamber of Commerce."

On the other hand, I dare say that each of the five mayors as well as other officials and leaders in civic organizations in Charleston are just as appreciative of the work carried on by the city's MPR director. Charleston has been fortunate in having for the past 25 years a man with real background and solid experience in this key position of Director of Port and Public Relations.

Previous Experience and Activities

A native of Alexandria, Va., Mr. Church, prior to taking his present position in June 1923, had wide experience in newspaper work both as reporter and feature writer. He also had been a book, magazine, and newspaper illustrator. He saw military service on the Mexican border in 1916 and as Regimental Signal Officer, 113th Infantry, AEF, until he was honorably discharged, May 12, 1919, after being wounded in action. After that he was consultant in graphic statistics for several Government bureaus in Washington, D. C.

If you want to see how a good public relations man can serve a city well in official capacity and provide a trusty right arm for the mayor, write to Mr. Church for a copy of his annual report for the calendar year 1947—the details of which are too numerous to discuss here.

When you see that he dictated 417 letters requiring research, turned out 204 newspaper and trade general releases, prepared 15 articles and reports, held 1,374 outside conferences, prepared 11 radio spots and speeches, drew 18 maps, plans, and illustrations, and prepared 13 pieces of advertising copy, among a long list of items—then you will appreciate that here indeed is a real municipal service—unobtainable except by the expert.

Modernizing Your Municipal Report

A very interesting study of the style trend in condensed, illustrated, modernized reports issued by towns, cities, schools, and other departmental authorities has come from the Mead Corporation.

Titled "Planning the Modern Municipal Report," the 42-page brochure traces briefly the rise of the modern, pictorial municipal reports, provides many illustrations from a variety of modern reports, carries a good bit of detail on the important production features in making up good annual reports and concludes with an interesting tabulation of the physical characteristics of 531 representative municipal reports, state reports, and housing and planning reports, followed by an "honor roll" giving a long list of cities and towns that have published reports incorporating many of the ideas illustrated in the Mead handbook.

This display, emphasizing need for city planning, is in Cleveland's City Hall.

This excellent presentation of know-how in annual municipal reporting, published by the Research Division of The Mead Corporation, is available from the Advertising Department of The Mead Sales Company, Inc., 230 Park Ave., New York 17, N. Y. You will want to look into this if your town or city is still putting out the old-style report. For, as the brochure points out, "before long any community which continues to put out the old-style annual statement will label itself as behind the times."

Publication of "Planning the Modern Municipal Report" is in itself an example of good public relations on the part of the Mead firm, producers of fine papers. It is a service to municipalities in annual reporting. It also provides a guide in the use of paper—a necessary and important factor in your printed report.

Cleveland's City Planning Display

Catching the eye of every person entering Cleveland's City Hall and selling them on the need for city planning is the novel display pictured above. Approximately 6 feet high and 4 feet wide, the facing of the display is a greatly enlarged picture of the city's downtown area. The balsa wood dummy, called "Little Joe" for want of a better name, animates each month's message on the 12-inch stage. Theme of the display is changed each month and follows that of the now widely distributed "Your City—Tomorrow" leaflets issued monthly by the Cleveland City Planning Commission. The leaflets are used in the "take one" box of the display as shown. Brainchild of Leroy Flint, the Commission's staff artist, and Jerry Madigan, Public Relations Director, the display leads the trend of popularizing city planning information.

The Customer Is Always Right Comfortable

Any information a customer is seeking from Chattanooga's Power Board can be obtained by the desk clerk by telephoning to the Kardex customer-history files, which are shown here.

By **FRANK DABBS**
Electric Power Board of Chattanooga
Chattanooga, Tenn.

IT'S a pleasure to deal with the Electric Power Board of Chattanooga, Tenn., for the service is built around the customer or prospective customer. Entering the air-conditioned building at Sixth and Market Street, the customer is seated at one of four Customer Contact desks and states her desires, such as an application for electric service.

The contact desk has PBX direct telephones to the History Section and the Service Section, so that the necessary details can be performed forthwith without giving the new customer a run-around. She sits it out comfortably.

In the History Section the customer's applications are filed under the Soundex System. Each application is filed by its last name or the first letter of the last name; then according to a code number determined by the sound of the last name. Each application contains the following information:

Name, signature, address
Occupation, business address, telephone number
Name of husband or wife
Date when service was connected or disconnected
Amount of deposit
Amount of inactive account or bad debt
Credit reference data

In the Service Section the account is filed by its location. This file contains the work orders used in the other departments. Each work order carries the address, account number, and other pertinent information.

Thus these two information sections are equipped to take new applications or report on the status of existing customers. The Kardex files are shown in the photograph. They are fire- and theft-proof. There are three sections for customers' history and three sections for customers' service. They will accommodate the servicing for some 75,000 customers.

The two sections are connected with the contact desks by 10 PBX telephone sets. To aid in prompt finding and transmission of information, particular attention was given to the lighting of these sections. It is fluorescent, of the two-tube, continuous-row, asymmetric type. Where the old ceiling fluorescent lighting provided only 8 foot-candles, the average intensity of the new system is 80 foot-candles.

Another Use for Sludge Gas

OUTLYING buildings containing chlorinators and other similar equipment remain at serviceable temperatures all winter at the sewage treatment plant serving Hamilton Township, N. J. Operator Lester Pope has installed thermostatically controlled gas burners using sludge gas to heat these buildings, thus achieving consistently reliable heat at substantially no operating cost.

Architectural Control in San Diego

How a California city is raising the architectural level of its public and private buildings

By GLENN A. RICK
City Planning Director
San Diego, Calif.

IT TOOK a black eye to awaken San Diego to the importance of architectural control. The blow was administered by the late Charles H. Cheney and a nationwide committee of architects. They rated San Diego's civic architecture in the cellar bracket for American cities!

That was 20 years ago. Since then, a large group of San Diegans has been interested in the architectural quality of the city.

The 1927 report praised the excellence of a few examples of good architecture in San Diego, such as the Exposition Buildings in Balboa Park, designed by Bertram Goodhue. But it lamented the general appearance of the homes and business structures throughout the city. The report did not condemn local architects, because it recognized that the largest percentage of the buildings was created without benefit of architects.

Largely as a result of this adverse report, an attempt was made to improve the appearance of the city by requiring all structures costing over a certain amount to have plans drawn by a licensed architect. Naturally this attempt met with failure and the proposal was never adopted as an ordinance. Instead the City Attorney decided that it was legal to require the exterior design of new buildings to be passed upon by the Planning Commission before a permit for building was issued by the Building Department.

Control Begun in 1934

It was not until 1934 that the city adopted its first ordinance requiring the City Planning Commission to pass upon the exterior appearance of buildings. This ordinance included an area of 626 acres, comprising the property fronting upon the 17 miles of Pacific Highway within the city. The highway had recently been opened as a state highway, at considerable expense to the city, county, and state, and it offered an excellent opportunity for testing the value of control. Shortly after this ordinance was placed in effect, one of the beach communities within San Diego requested a similar ordinance to protect that district from unsuitable structures.

Other districts followed, and today 28 such districts comprising 20,559 acres —about one-third of the city's area— have architectural control. In addition, the City Planning Commission has authority by virtue of the city charter to pass upon buildings in an additional 9,136 acres of property, including parks, tidelands, and miscellaneous property owned by the city, thus making one-half of the city under architectural control. The recoil from the black eye has worked to the benefit of the city.

Since architectural control has been in effect, the Planning Department has passed upon 11,550 applications for building permits in controlled areas. This is only a fraction of the building permits issued for the entire city during the same period. It does represent, however, a substantial improvement in the appearance of small homes and other structures in controlled areas.

Applications for building permits in architectural control areas are given special consideration. In addition to the usual zoning check, they are examined for appearance and general adaptability to the neighborhood. There is no predetermined standard; rather, the existing buildings in each area determine the quality of the new structure. In other words, a building permit for a proposed building may be refused in one architectural district and approved in another.

The results obtained have been sufficiently gratifying for both the City Planning Commission and property owners to continue the efforts under way and to carry the activities into new districts.

One of the early tests of the Commission's authority was with a large airplane plant. The drawings submitted for approval specified that the building was to be covered with corrugated iron along several hundred feet of frontage on a main highway. The management of the concern was prevailed upon to stucco the building and the results were so pleasing that the owners landscaped the front with trees and shrubbery—and this was done with the company's own money, not federal funds.

Arguments with owners and builders have not been rare. Compromises have been frequent. In disputed cases the owner usually changed the plans in order to get a permit. In a few instances he has not constructed the building as shown on the approved plans. When this has occurred the owner and builder have been sent letters calling attention to the misrepresentation, and given a reasonable length of time in which to make the the correction. Very few have failed to make some adjustment to improve the appearance of the building.

Some persuasion has been necessary to convince builders to change elevations. Certain builders operating on close margins want to have one set of drawings serve for a row of 10 or 20 houses in a line. This sort of thing was prevalent a number of years ago but is not common today.

Legal Status

The authority for the Planning Commission to pass upon the exterior appearance of a building is not legally strong. In fact, there are many who say it would not be sustained if attacked in court. What actual authority exists is contained in an amendment to the Building Code stating that all applications for building permits in architecturally controlled areas shall be referred to the City Planning Commission together with plans and specifications, and that the Commission shall either approve or disapprove the exterior design. If not approved, the Commission is required to confer with the applicant and recommend changes in the design. Should the applicant refuse to accept the recommendation of the Commission, the application, plans and specifications, together with the comments of the Commission, are returned to the Building Inspector with a recommendation to deny the permit.

Our experience to date has been very satisfactory so far as cooperation with the Building Inspector has been con-

(*Continued on Page* 163)

When a Flood Wrecks a Water System

Downtown Ottumwa, Iowa, looked like this during last year's flood.

City and state officials combine forces to provide potable water during this municipal emergency

By P. J. HOUSER
Iowa State Department of Health
and
J. J. TEPAS
Mathieson Chemical Corporation

ONE of the worst floods in Iowa's history occurred in June 1947 when the water supplies of about fifty cities and towns in the state, with a total population of about 400,000, were affected. Except for one day during the month, the Des Moines River was continuously at flood level at some point along its banks.

The flood caused power failures in a number of cities, interrupting operation of the water plants. Various water-works systems were mechanically damaged by the force of the flood waters; in two communities, water mains at river crossings were swept away. In some communities, there were cross connections between the public water supply and the private non-potable supplies ordinarily used for industrial purposes, such as cooling or fire protection. Backflow of polluted water as a result of reduced pressures was a serious threat to the safety of these supplies. There were numerous instances of actual inundation of parts of the water-works system, and flood water entered the tops of wells, filled pits and backed up into storage reservoirs.

Partial Damage

Where there was only partial damage to the water distribution system, it could in some cases be overcome by re-routing the water to by-pass broken mains. It was found very helpful to have complete maps of the distribution system, with accurate detailing of the valves and connections, so that the flow of water could be closely controlled. In one town (Oakland) the cast iron pipe connecting the city with the source of supply across the river was washed out by flood waters. To meet the emergency, a fire hose, laid on 2-by-4's which were suspended from a wire cable supported by telephone poles, was strung across the river, which at this point is 250 feet wide. In other cities, it was possible to maintain service after the public water supply was cut off by connecting institutional supplies to the public distribution system.

State Department of Health engineers assisted municipal officials in the operation of water supplies and other sanitation facilities throughout the emergency.

Where contamination of the supply was suspected (or expected), an increase in the amount of chlorine residual was used as protection, and more frequent sampling of the water served as a check. It is interesting to note that in some places fairly high chlorine residuals could be carried without rendering the water unpalatable. Free chlorine residuals of 2 ppm and more were carried in the distribution systems of several communities for extended periods.

The most severe emergency occurred in Ottumwa, on the Des Moines River. Here the water works was completely shut down for 24 hours, and the water supply declared unsafe for 30 days. Health authorities appealed for assistance to the neighboring area by radio,

and an excellent response followed. Water was brought in from nearby cities, farms, and industrial plants. All kinds of containers were used for transporting the water, from five-gallon cream cans to 3,000-gallon gasoline tankers, and as much as 30,000 gallons of water per day were hauled.

Water Stored and Purified

The water collected in this way was stored in swimming pools at the Ottumwa High School and City Park. Canvas tanks were borrowed from the U. S. Army Engineers Corps to serve as auxiliary storage units.

All water brought into the city was tested for residual chlorine content, and, if deficient, was treated with high-test calcium hypochlorite (HTH) to provide a residual of at least 1 ppm after 30 minutes' contact. The water stored in the swimming pools and canvas tanks was purified by means of equipment set up and operated by engineering personnel of the State Department of Health. This equipment consisted of portable rapid sand filter units with hypochlorinators and a trailer-mounted liquid chlorine feeder.

39 Distribution Points

After purification, and as needed, the water from the pools and tanks was brought to 39 distribution centers throughout Ottumwa from which water was dispensed to the inhabitants. Tank trucks loaned by the Army and neighboring cities were used for taking the water to these distribution points, which consisted of covered stock water tanks, Army Lister bags and canvas tanks, and other suitable vats commonly used for storage of potable liquids, including a milk-pasteurization vat. The 1-ppm chlorine residual carried by the water was believed sufficient to protect it from contamination which might be introduced by the containers brought by the populace.

This procedure supplied a safe water supply for drinking and culinary purposes throughout the emergency period. Water for fire protection, flushing toilets, and other nonpotable purposes was treated heavily with chlorine and pumped directly into the system from the flood waters of the Des Moines River.

Resterilization Required

Before the water works could return to normal operation, it was necessary not only to repair the mechanical damage, but also to make certain that the entire storage and distribution system was thoroughly disinfected. It was realized that amoebic cysts and other chlorine-resistant organisms could have remained in the sediment which was deposited around valves and other parts of the system. All sediment and mud were therefore removed from the system before proceeding with disinfection. This was done by systematic flushing under the supervision of State Department of Health engineers. In parts of the system, the flow of water was intentionally reverted to stir up the sediment while flushing to waste.

In the flushing operation, detailed and up-to-date records of the distribution system, with accurate information about the location and condition of valves, was found to be of utmost importance. Return to service of one water-supply system was considerably delayed because valve records had not been kept up-to-date.

Chlorination

The usual procedure after flushing was to treat the system with a heavy dose of chlorine (250 to 300 ppm. in the form of calcium hypochlorite or chlorine gas). This heavily chlorinated water was left in contact with all surfaces for from 4 to 24 hours.

In addition to the water works, attention was given to plumbing systems of buildings and to private water supplies, such as wells in the flooded area, which also needed disinfection. Six- and twelve-ounce cans of chlorinated lime, and high-test calcium hypochlorite, made available by the Red Cross, were distributed, with directions for their use. The public was advised that all plumbing systems would be flushed and filled with the heavily chlorinated water from the system.

Before the supply from the system was released for normal use, samples were examined for bacterial quality. Because of the heavily polluted condition at Ottumwa, at least two consecutive satisfactory results were required from each of the 80 sampling points throughout the system. A total of 339 samples was examined from Ottumwa during the flushing and disinfection operations. These samples were taken to the State Hygienic Laboratory at Iowa City (97 miles distant) and reports returned by special messenger service provided by the Red Cross.

Disease Prevention Information

The Iowa State Department of Health also conducted an educational campaign in the flood areas throughout the state. Bulletins were released to the press and radio, for use during and after the flood, urging that safety measures be observed. These bulletins described the proper treatment of food, milk, and water for the prevention of disease, and also told how to sanitize basements and other property which had been affected by the flood.

The efficiency of the methods used in Iowa is indicated by the fact that not a single case of water-borne disease was reported as a result of the flood.

Drinking water being brought into Ottumwa from a neighboring city public supply. All water was tested.

Canvas water storage and distribution tanks and portable water purification equipment set up at the high school.

What Cities May Do to Stimulate

Housing surveys clear away confusion and focus attention on the facts

THERE is agreement on the part of everyone that in most American cities today new housing is needed. But there is often disagreement on the type of housing and for what income groups it should be built. People are confused by charges and counter charges, and a lack of objective facts keeps the issue beclouded. Therefore, the first step for a city tackling this problem is to define its particular need.

Objective housing surveys and market analyses have proved to be very effective in a number of cases. An impartially collected set of facts and the resulting suggestions for action usually are respected by the most divergent groups and form a basis for cooperation. Such surveys do not necessarily have to be carried out by specialists or professional groups, but may be done by citizen groups formed by the Chamber of Commerce or some other civic agency. To this end, a brief discussion of some of the techniques used, the facts to be assembled and the resulting housing tabulation which may be considered standard procedure are set forth below.

Two Basic Questions

In order to define its housing need, a city must find the answers to the following questions:

1. *How many dwelling units are there in the city now; how old are they and in what condition?*
2. *What is the population today and what is the housing demand at present?*

The contrast between these two sets of figures, these two pictures, constitutes the core of a city's housing needs. The 1940 census is the starting point for such a survey, but to bring the picture up to date other types of data, adjusted to the census base, must be used. Exactly comparable figures, of course, could only be obtained from another census.

Gathering of Data

Information on the number of dwelling units at present can be obtained from the record of residential permits which have been issued since 1940. Facts concerning the number of new buildings as well as the location of new developments can often be obtained by comparing aerial photographs taken at different periods.

Data on population and housing demand are more difficult to compute and evaluate. Therefore, it is best to use records from as many different sources as possible for check purposes. Since a city in general needs a dwelling unit for every family, it is of prime importance to know the number of new families formed since the last census. The public records of births and deaths show the annual excess of births over deaths. Marriage records will show the number of new families and, because the size of the family is shrinking and is expected to continue to do so nationally, this factor is very important in estimating housing needs in the future. The school census, too, can be a valuable indicator of the movement of families in and out of the city. By taking 1940 as a base and tabulating the number and age of the children year by year to the present, the changes in the school population will show up. For example, the number of first graders in 1940 is tabulated and the group carried through the succeeding years. This same group of children shows up in 1948; if the 1948 total shows a gain over the total in 1940, a movement of families into the city is indicated. The need for housing is also reflected in the amount of doubling up which exists; a check by the postal carriers of the number of dwelling units shared by more than one family provides this information.

Other Housing Market Considerations

When all these data have been compiled, the specific need in terms of the number of dwelling units will be clearly defined. But need is not the only thing which determines demand. The market for new housing rests heavily on ability to pay, which may be determined by the issuance of questionnaires to local industrial, commercial and service employers, with the Chamber of Commerce facts and figures used to fill in the gaps. Since married women are remaining in employment in large numbers, sometimes exceeding 30% of all the married women in the community, it is important to find out how many there are and, if possible, what their earnings are. It obviously has an important effect on the family income, which is the real key to housing rather than the individual income. When women's income figures are not easily obtainable, it is usually assumed that about 1 in 3 families will have an additional female wage earner and they are assumed to be in the lower income groups.

Criteria for Demand

Now the question is, "What is the most pressing demand for housing?" The following are some of the criteria by which this can be measured:

1. The most pressing demand will obviously be from the number of families which are doubled up.
2. The working families now obliged to commute but who wish to live within the city limits form another important segment.
3. The importance of the statistical vacancy demand is often overlooked, but without vacancies, no normal movement of families up or down the economic ladder is possible. The creation of 3% or more of numerical residential vacancies within the city is necessary for healthy, normal competition and decidedly below the danger point in landlord operations.
4. Another pressing demand is to replace the unfit habitations, which usually have become worse since the 1940 census.
5. Finally, there is the general demand from income groups composed mainly of new families and families which have improved their economic status in recent years.

Although the pressing demand may be computed with some accuracy, the exact demand must be subordinated to a counting of families who are able to afford new construction at present levels and the number who might be housed by public subsidy. Both these high- and low-income groups show the realistic limitation of housing demand today. Although, in theory, all income groups should be served, we must fill the needs of those who can afford new space or who qualify for subsidy (if it is available) and count heavily upon "filtering up" to satisfy many in the larger middle-income group.

Facts Should Be Shown in a Simple Tabulation

The findings of the study should be combined in a simple tabulation. It should show the different income groups of the city in multiples of $500, the need for new housing grouped according to undoubling, replacement of unsatisfactory housing, commuting needs,

the Building of New Housing

By FREDERICK H. ALLEN
Harrison, Ballard & Allen
*Housing Consultants, New York City**

vacancy creation, and finally the ability to pay in terms of purchase or rent for each income group. This will inevitably show to all groups within the municipality what a small proportion indeed of the population is able to support new private housing. In many instances, municipal opposition to and fear of public housing or other forms of subsidy have been dissipated by such a presentation of facts.

Questionnaires issued to workers, to veterans, or other groups in various cities have been misleading. What the family wants and what they can afford under current conditions are different things. It must be remembered that the thinking of the average family on the subject of rent or home purchase has been distorted by rent control. They fail to realize that the cost of new dwelling quarters must necessarily reflect the general rise in all the rest of the price structure. Therefore, there is a tendency to expect considerably more for their housing dollar than can be realistically produced under present conditions.

To the City's Benefit

The city itself may find, upon the completion of such a housing survey, that it is to the benefit of the city as a whole to guide the development of new housing carefully so that it will be designed within the financial limitations of the city utility plans and will utilize to best advantage existing city facilities. Such a program will save the taxpayer considerable money and curb irresponsible subdivisions which many people find easy to justify during a housing shortage.

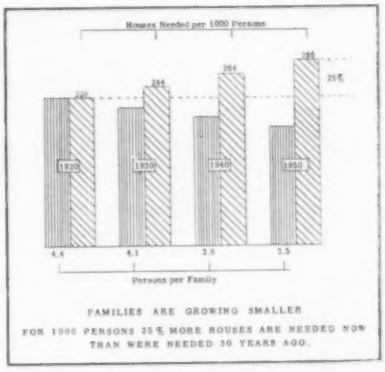
Survey Not Enough

A survey of the facts will go a long way toward stimulating housing, but it is not enough. Cities must also bring their zoning regulations up to date, revise building codes for the inclusion of more economic materials, consider new street patterns for savings in utility lines and future costs, and promote long-range city planning to attract sound financial investments.

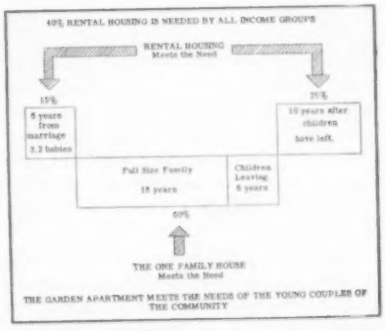
Pertinent housing facts can be visualized through graphic material.

SUMMARY OF MARKET FOR NEW HOUSING

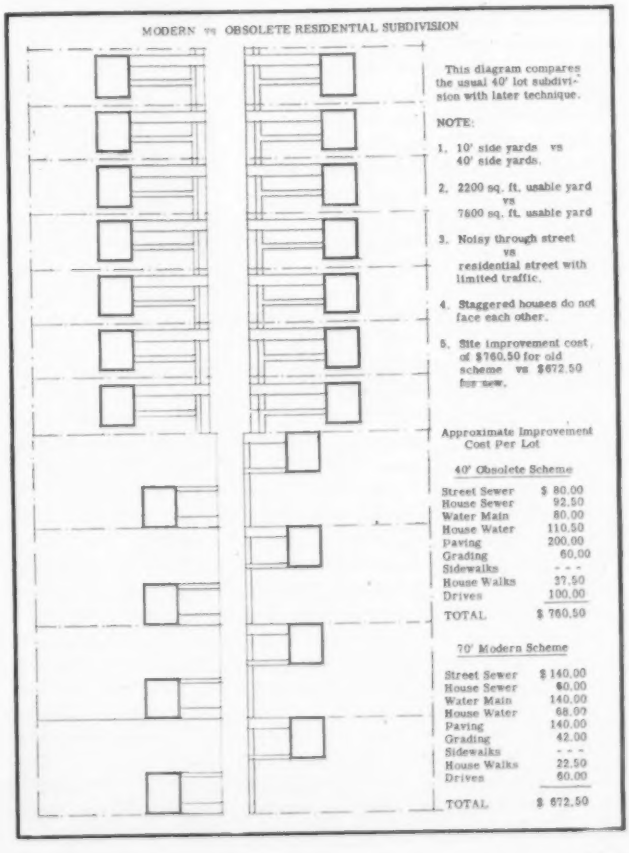
Income Ranges $	Employed Individuals	Families Deriving Living From Locality No.	Families Deriving Living From Locality %	Need for Housing No.	Need for Housing %	ABLE TO PAY Sale $	ABLE TO PAY Monthly Shelter Rent $
500-1000	432						
1000-1500	1725	536	4.76	190	10.00	2500	12.50
1500-2000	3186	1494	13.28	288	15.21	3500	25.00
2000-2500	3594	2119	18.84	296	15.56	4500	31.50
2500-3000	2776	1801	16.01	273	14.37	5000	45.00
3000-3500	1667	1249	11.10	214	11.26	6500	54.00
3500-4000	841	1291	11.48	205	10.68	7500	62.50
				(1465)	(77%)		
4000-4500	368	816	7.27	158	8.37	8500	71.00
4500-5000	140	560	5.24	135	7.11	9500	79.00
5000-5500	69	414	3.68	63	3.32	10500	87.50
5500-6000	50	385	3.42	39	2.05	11500	96.00
6000-Plus	110	553	4.92	39	2.05	15000	$100+
				(435)	(23%)		
TOTAL	15,000	11,250	100%	1900	100%		



FAMILIES ARE GROWING SMALLER
FOR 1000 PERSONS 25% MORE HOUSES ARE NEEDED NOW THAN WERE NEEDED 30 YEARS AGO.


40% RENTAL HOUSING IS NEEDED BY ALL INCOME GROUPS
RENTAL HOUSING Meets the Need
15%
5 years from marriage 1.2 babies
25%
10 years after children have left.
Full Size Family 15 years
Children Leaving 5 years
60%
THE ONE FAMILY HOUSE Meets the Need

THE GARDEN APARTMENT MEETS THE NEEDS OF THE YOUNG COUPLES OF THE COMMUNITY


MODERN vs OBSOLETE RESIDENTIAL SUBDIVISION
This diagram compares the usual 40' lot subdivision with later technique.
NOTE:
1. 10' side yards vs 40' side yards.
2. 2200 sq. ft. usable yard vs 7600 sq. ft. usable yard
3. Noisy through street vs residential street with limited traffic.
4. Staggered houses do not face each other.
5. Site improvement cost of $760.50 for old scheme vs $672.50 for new.
Approximate Improvement Cost Per Lot
40' Obsolete Scheme
Street Sewer $ 80.00
House Sewer 92.50
Water Main 80.00
House Water 110.50
Paving 200.00
Grading 60.00
Sidewalks - - -
House Walks 37.50
Drives 100.00
TOTAL $ 760.50
70' Modern Scheme
Street Sewer $ 140.00
House Sewer 40.00
Water Main 140.00
House Water 68.00
Paving 140.00
Grading 42.00
Sidewalks - - -
House Walks 22.50
Drives 60.00
TOTAL $ 672.50

* This firm was recently awarded a contract by the City of New York to make a comprehensive survey of the zoning regulations and to prepare recommendations for new appropriate zoning districts under the direction of the City Planning Commission.

Giving construction details of the re-built water filters of Mount Clemens

Filter Reconstruction — Part III

By ROBERT E. HANSEN
Superintendent of Filtration
Mount Clemens, Mich.

After removing the sand, the crew discovered mounding of the gravel in the filter bed. At times this mounding was as high as 16 inches.

IN THE last two issues, we presented our problem of filter reconditioning and told of our decision to replace our filter laterals with Transite pipe and Wagner Block underdrains, both furnished by Infilco, Inc. We also selected new sand and gravel for our filter medium, rather than attempt regrading the old, since the new could be obtained more inexpensively than the old could be reclaimed.

Our first step was to remove the old filter medium. Robert Hulbert of the Detroit Water Works kindly lent us an ejector and a quantity of 3-inch hose. The 3-inch hose from the discharge side was put through a window and out to the rear of the plant where we had built two 12-by-12-foot tubs to hold the sand. We had placed ⅛-inch oil-tempered masonite on the ground, built 3-foot-high sides of 2-by-12 inch plank, and laid a piece of canvas over the bottom and sides to retain the sand. Workmen shoveled sand into the ejector hopper and the ejector forced it out to the tubs.

This method served excellently. Four men could remove sand from a filter in four hours, whereas in 1944 it took six men three days to do the same work with shovels and wheelbarrows.

When the workmen reached the gravel, they found many high hills of gravel. Differences between high and low spots varied as much as 16 inches in some locations. They also discovered much mixing of the gravel.

We used the ejector to remove the small gravel too, which it did very well even with a lift of 13 feet and a discharge hose 146 feet long. However, we removed the throat used for the sand, and put another in its place with a larger opening.

We also tried removing the large gravel mechanically, but this method failed. We had employed a gasoline-driven belt conveyor similar to the type used in coal yards for loading coal into trucks. Even though it had raised cleats about an inch high and 10 inches long, most of the gravel would tumble back down the belt, and the rest would fall underneath. We finally removed the gravel by buckets and a block-and-tackle.

How the filters looked when they were completed. Waterproof Inertol enamel put the finishing touches to give them a clean attractive appearance.

After all the laterals and the remaining gravel were removed, concrete ridges that supported the blocked ends of the laterals against the two walls and one in the center of the floor had to be taken out with a sledge hammer and chisel. The packing and the remaining Leadite also had to be cleaned out of the tees. The concrete floor covered four manifold headers out of which the tees rise, and only two rows of tees could be seen in the filter. A layer of concrete about an inch thick had to be laid over the floor of the filter in order to make the top surface of the Wagner Blocks level with the top side of the Transite laterals.

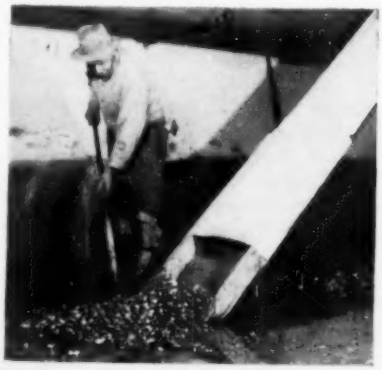
When we ordered the Wagner Bottom and the Transite laterals, we had to use the 2-inch i. d. Transite Class 100 pipe to have the proper clearance for the #1 blocks. These laterals have 16 quarter-inch holes drilled in a straight line 3 inches apart on center and a small air hole in the plug on the blocked end, near the top side. A space about two inches wide on the open ends are all machined to a precise measurement of 2.82 inches outside diameter. The opposite ends are blocked with a piece of Transite held in place by two brass screws countersunk and

the holes plugged with cement. The inside is smooth as polished steel, and since the weight of the laterals is a fraction of the weight of cast iron, they are easy to handle.

The supplier had furnished twisted rope oakum and lead wool for installation of the Transite laterals to our cast-iron tees. We tried the lead wool, but the laterals could be moved easily and worked loose. In the presence of one of the supplier's engineers we tried some joints using lead wool and some using Leadite. The ones using Leadite were much more firmly anchored than those with the lead wool, so it was agreed that in this case Leadite was the material to use. We also used ½-inch-square braided jute instead of oakum as it conveniently and precisely centered the pipe in the tees. We uncoiled and ran the jute through the autoclave at 15 pounds' pressure for 15 minutes or more before using it.

We had made up forms ahead of time to cast small concrete blocks to support the laterals, and had planned to use one square 2-by-2-inch support in the center, and one on the ends of the laterals. The end support against the two walls was L-shaped to support the end and to hold the lateral back in case it worked loose through the years. A piece of ⅛-inch linoleum was put between the plugged end of the lateral and the concrete to allow for expansion, as Transite swells slightly in water. End supports between the middle rows of laterals were shaped like an inverted T for this same purpose.

When the concrete was set, the forms were removed and checked to see that no orifices were covered, and that the perforations were straight down, not to one side. Then Leadite was poured in all the joints and the floor cleaned thoroughly. I posted four men, each one to watch one-quarter of the laterals, and opened the wash-water valve wide to test for faulty installation. Not one of the laterals moved in any of the three filters tested.



When replacing the gravel, the operators admitted water to the filter to keep the layers of gravel level.

Blocks were handed down from one man to another into the filter. As there was a variation in the spaces between the tees, "ears," or nubs, had to be chipped off one or both sides of the blocks to give clearance between laterals, and blocks in some rows, to allow for the slight Transite expansion under water. To make the rows of blocks between the tees come out even, one leg section was chipped off one block in each row. Between the laterals and two of the walls, partial blocks were used. Two sizes were furnished and one of these, or a combination, was used according to variation in the wall. Partial blocks were used between the tees also, and the rest of the space was filled with ¾- to 1½-inch gravel, carefully hand-placed so as not to block the ⅜-inch perforation on the sides of each tee.

The gravel portion of the bed was built as follows:

1½- to ¾-inch	6	inches deep
¾- to ½-inch	2½	inches deep
½- to ¼-inch	2½	inches deep
¼- to ⅛-inch	3	inches deep
⅛- to 1/12-inch	2½	inches deep

This made a total depth of 16½ inches of gravel. We added the extra layer of 1/8- to 1/12-inch to give more support to our fine sand. When one grade was approximately at its mark, we admitted water to the filter to aid in leveling that layer.

To screen the sand, we made a wood frame 27-by-70 inches to which we nailed flyscreen (16-mesh screen) strengthened by ½-inch mesh hardware cloth beneath it. This was set at an angle in a shallow tub constructed like the large sand tubs. Sand was shoveled on the screen, and one or two hoses washed sand through the screen. Washed sand was shoveled from the shallow tub into the ejector. Additional screens had to be nailed between the base of the frame and the side of the tub to prevent fine gravel from washing into the tub.

We used the ejector to return the sand to the filter bed. The discharge from the ejector was directed into a mortar box resting on the gravel to prevent the heavy hose stream from making holes in the gravel bed. The mortar box was raised as the sand piled up, until all the sand was in. The filter was then washed, disinfected, and washed ten times more, after which it was ready for use.

We finished the #4 filter in the spring, and waited until fall to complete the other two. These we rebuilt in 13 working days each. The first had taken 16 working days. The size of the crew averaged six men including the foreman, Mr. Herman Penzien.

To make it convenient to keep track of the sand level through the years, I obtained four pieces of flat stainless steel that measured 3 inches by 24 inches and had a groove cut across the center of each one. One was attached to a wall in each filter by means of stainless steel bolts screwed into lead wall anchors. The groove was fixed at about a foot above the sand surface, so that in each case, we would be able to add more sand in some future time. The exact measurements from the groove to the sand surface were taken and recorded in the filter record. We did not add more sand to filters 2, 3, and 4; we merely put back what we took out, which amounted to 22 to 24 inches.

To join the laterals to the tees, workmen used Leadite and sterilized ½-inch-square braided jute packing, which centered and held the pipe.

We finished painting our filter walls down to the sand level with Inertol Torex Turquoise Blue, a light blue, and the ledges with Inertol Ramuc Royal Blue. Before painting the walls of the filters, we had to remove the old paint and found we could do this very efficiently with flexible shafts connected to a ¼-hp electric motor. Six-inch-diameter wire wheel brushes were used. A length of 1½-inch pipe was laid across the top of the filter, and two small block-and-tackles hooked to it. Motors could be raised or lowered with these blocks and tackles, and slid along the pipe as the work progressed.

We now have on the books experience which we hope will be helpful to our friends if they face this same sort of problem. We believe that we now have a set of underdrains that is corrosion-proof. We have the gravel bed laid away so that it is structurally able to hold the sand without disturbance even during abnormal backwashing. And we have the filter room redecorated now so that it will reflect the cleanliness and attractiveness that one associates with water operation. We will try it out for another 15 years, and see whether at that time we will have anything further to contribute on the subject.

Prompt action by a fleet of International Tractor Plows keeps Chicago's Wacker Drive open.

"Alert–Assemble–Operate"

Chicago adopts a four-color code system that puts snow-removal work on a basis that enables it to meet plowing and clearing emergencies

A NEW coordinated plan of snow removal was put into operation in Chicago last year, and already has had enough trials to prove its workability. The plan is administrated from six strategically located stations. Each station has a supervisor and a staff of assistants. Details developed by Thomas Murphy, Supervisor of Refuse Collection, under the direction of L. M. Johnson, Commissioner of Streets and Electricity, outline the duties to be followed by each man.

The color code, resembling somewhat the signals of the old air-raid warning days, uses four phases of operation, as follows:

1. WHITE — ALERT AND WARNING
2. YELLOW — ASSEMBLE FORCES
3. GREEN — FULL OPERATION
4. RED — STOP OPERATION

White—Alert

The decision to declare an "alert" rests with the Supervisor of Street Cleaning with the approval of the Supervisor of Refuse Collection. He contacts the Chief Dispatcher, the Head Motor-Truck Driver, the Superintendent of Equipment, and the Office Manager.

Chicago's Mayor Martin H. Kennelly, extreme left, and Commissioner Lloyd M. Johnson, center, inspect the Athey snow loader, scooping up a windrow.

giving the color code "white." All men then take appropriate action. The Station Supervisor contacts each Ward Superintendent. The Ward Superintendents pass the information to all employees in the ward. Ward Clerks go to their emergency stations and the Ward Foremen make themselves available if the alert goes further.

Yellow—Assemble

If the storm still threatens, the Supervisor of Street Cleaning notifies each Station Supervisor of a change to "Yellow." He also contacts the Chief Dispatcher, the Head Motor-Truck Driver, the Superintendent of Equipment, and the Office Manager.

The Chief Dispatcher immediately assigns two assistants to help in the communications. The Head Motor-Truck Driver assembles his personnel for emergency operation. He also works with the Ward Superintendents, and assists those who may have difficulty in notifying and securing chauffeurs from the list supplied them.

The Superintendent of Equipment assumes responsibility for notifying wreck-truck drivers, service mechanics, and parking location personnel to report to their respective stations, and also assembles such equipment as is deemed necessary for the operation.

The Office Manager immediately assigns switchboard operators and report clerks such duties as are necessary to keep the Central Administrative Office operating smoothly.

The Station Supervisor, upon being notified by the Supervisor of Street Cleaning, passes this notification to each Ward Superintendent. He instructs each Ward Superintendent to contact immediately all personnel from his ward assigned to his station. If the emergency arises during working hours, he instructs the person on duty at the station to erect a yellow flag.

Upon notification, the Ward Superintendents contact the motor-truck drivers, and tell them to proceed to their stations. Ward Clerks proceed to their stations too, as do Ward Foremen, who also check equipment operation for possible immediate use.

Green—Full Operation

If conditions develop further, the Supervisor of Street Cleaning notifies all Station Supervisors and other key personnel of a change to "Green."

With the green of the color code in effect, the Chief Dispatcher checks with each station to make sure that all equipment is rolling. Also, he and his staff accept complaints of equipment failure and notify the mechanical dispatcher, who, in turn, sends mechanics to render service. If a replacement is needed, it is his responsibility to see that it is made.

The Head Motor-Truck Driver makes another check with the Station Supervisor to be sure that all drivers have been properly assigned and are operating in accordance with instructions. If the storm lasts more than one shift, it is his responsibility to effect a system of continuous checking to see that sufficient truck drivers are available.

The Superintendent of Equipment is responsible for the operation of his division in accordance with the procedures established by him. If it becomes apparent that emergency operation will require more than one shift, it is his responsibility to arrange for sufficient personnel to carry on.

The Office Manager supervises the taking and compiling of progress reports from the various stations, and he submits them to the Supervisor of Refuse Collection and the Supervisor of Street Cleaning.

After notification of a change in color code to green, the Station Supervisor immediately starts the trucks on the routes, and plowing begins. The Supervisor also erects a green flag at this station, and notifies all Ward Superintendents who are not assigned to a station of the change. When all equipment is under way, he reports immediately to the Supervisor of Street Cleaning. The Foremen have the responsibility of making a progress report by telephone to the Station Supervisor every two hours. When giving this report, the Foremen enumerate the actual streets which have been plowed during the two-hour period, as well as other important information.

Red—Stop Operations

When the emergency abates and the streets have been cleared for traffic, the Supervisor of Street Cleaning notifies all Station Supervisors of the color-code signal red, signifying that all operations are to stop.

The Chief Dispatcher, after notification of the change, remains on duty until all equipment is reported checked in at the stations. The Head Motor-Truck Driver, through the Station Supervisors, notifies drivers of further assignments. The Office Manager supervises the taking and compiling of final reports from the stations, and submits them, as quickly as possible, to the Supervisor of Refuse Collection and the Supervisor of Street Cleaning.

When the Station Supervisor is informed of the change in color code, he notifies the trucks in the field when they call in their next report. If, in the opinion of the Station Supervisor, it is necessary at this time for any truck to continue operations, he must obtain permission from the Supervisor of Street Cleaning. If he deems it advisable to stop operations before receiving notification, he calls the Supervisor of Street Cleaning and discusses it with him. When the trucks stop operating, it is assumed that primary and secondary streets have been plowed. The Station Supervisor then directs the trucks back to the wards in accordance with the lists supplied him, which operate under the direction of the Ward Superintendents in plowing other streets where unusual conditions may have arisen.

With this program, Chicago also passed an ordinance limiting parking to the time required for loading and unloading passengers and property, which allots 3 minutes for passengers and 30 minutes for materials. Such restrictions remain in force only during snow emergencies, when more than an inch of snow is on the street. Last New Year's Day, with a 3- to 6-inch snowstorm, gave Chicago an opportunity to try out the ordinance. Because the ordinance was new, the response by the motorists was only fair. However, the Department had splendid cooperation from all the radio stations who issued repeated warnings to motorists, advising them of the storm conditions and instructing them to remove their cars from through-streets or from streets that have street cars or buses. Since then the Department has instituted an extensive educational program and, with better police cooperation, can reasonably expect more compliance when the next storm arrives.

The department uses the following snow-fighting equipment:

175 truck-type snowplows
10 International tractor plows
3 Athey snow loaders
3 High-lift loaders
1 Austin power grader
5 Pneu-Hydro snow loaders
5 sand spreaders

The work is under the direction of L. M. Johnson, Commissioner of Streets and Electricity, and directed by Thomas F. Murphy, Supervisor of Refuse Collection.

Plowing cannot proceed if autoists leave their cars parked. Here is one being towed away for violating Chicago's newly amended winter parking ordinance.

Toward Pleasanter, More Efficient Communities

Excerpts from "A Housing Program for Now and Later" prepared by a Joint Committee of the National Association of Housing Officials and the National Public Housing Conference

A BASIC principle of "neighborhood planning," as taught in our best schools and expounded by our best planners, is the inclusion of a variety of dwelling types as well as various community facilities in any residential development, to provide adequate choice and to prevent over-standardization both in population and in general appearance.

In ordinary practice, however, multi-family and private houses are seldom mixed, and the decision between them is made either on a slide-rule, in terms of the density required by a given land-cost, or by a zoning commission. Growing recognition of the virtues of row or "group" housing has, it is true, extended the use of ground-level dwellings with private yards to somewhat more expensive land than formerly. And a few bold suburban builders have tried to include some apartments along with the usual family homes. But, by and large, a central site in a large city still means apartments, even if the people to be housed there include many families with small children; while most desirable outlying land is zoned exclusively for detached houses, thereby barring most progressive types of community development.

Complete rezoning is needed in a great many areas, or at least the incorporation of modern flexible provisions in outmoded, over-restrictive ordinances. This means the difficult task of undoing and reshaping public attitudes created by 30 years of earnest mis-education.

Flexible Planning

The demand for community facilities has been increasing so rapidly that it is by no means clear just what will be standard neighborhood equipment in another decade. But one thing is sure: ample space must be reserved. Flexibility in design must also be considered, for the elementary school may soon have to serve toddlers and adults as well as adolescents and the people who want bowling alleys today may want a cooperative restaurant tomorrow. Nursery schools and other facilities now provided sporadically by local authorities, landlords, outside private agencies, or tenants themselves, are likely to become a general civic responsibility sooner or later and this step should be envisioned ahead and encouraged.

The increase in neighborhood integration may eventually result in some sort of recognized unit of government at this level. It may prove just as necessary and desirable for the city to hand down some of its detailed responsibilities for planning and management to this smaller group as to hand on to the regional level some of its broader powers.

Democratic Neighborhoods

Good neighborhoods are not, however, just a varied arrangement of land and buildings properly planned and efficiently managed. They are only "good" insofar as they promote a good life and a healthy democratic society. And they are not good at all, no matter how handsome, if they promote and strengthen class barriers and racial discrimination.

When we get a broad-based and efficient housebuilding mechanism, it should not be impossible to plan new developments to include different types of public and private housing, adjacent to each other and sharing major public facilities to some degree. In recent planning for central reconstruction, part of the stated purpose is often to "bring back" some well-to-do families and restore a healthier civic balance. The reverse principle is equally necessary: inclusion of lower-income families in suburban plans. The greatest opposition will come from those upper-class communities whose primary preoccupation is protecting themselves against "invasion." And perhaps they should just be allowed to obsolesce gently in full possession of their prejudices . . . provided we don't create a lot of new ones.

Practically all of the 4.5 million dwellings needed by 1951 must go on vacant sites, many if not most of them outside the corporate limits of established communities. (The Bureau of Labor Statistics estimates that more than 40 per cent of current nonfarm housebuilding is in the latter category, with the percentage rising.) And even in the decade following, at least 5 to 6 million homes must go on new land. Besides the net increase in families, there will be some "overspill" from redeveloped areas if they are properly planned at low densities and if adequate parks and open spaces are introduced into central districts.

Ten million homes with their schools, shops, open spaces, and whatnot, will probably take up more than 3,000 square miles of space, an area equal to all the land within the boundaries of our 40 largest cities, and half again as big as the entire State of Delaware.

This is our last great chance to do it right the *first* time, to prevent future blight and to remedy some of the ills that already threaten to paralyze and bankrupt our communities . . . ills due primarily to chaotic expansion in the past.

There is plenty of land, of course, any amount of land for further expansion. That is our traditional frontiersman's attitude. But what will result if we just let the sprawl continue? Building operations will be spotted around the outer fringe without beginning or end, largely in unincorporated areas without adequate controls . . . but all to be served somehow by schools, churches, shops, highways, transportation, sewers, water, fire-engines, and police. Eventually a welter of little new local governments will spring up to battle against each other, the central city, and any whisper of metropolitan unification . . . governments too small and weak to reserve adequate parks, provide efficient services, undertake the necessary public housing, or assist desirable private development. The surrounding open space that makes our present outer suburbs attractive will be gone and many of them will begin to look suspiciously like the older blighted areas.

What Could We Do Instead?

At some point in this cycle the citizen will balk. He will look around the country for a place to live where his

wages, even if lower or more uncertain, might buy him an easier and pleasanter life. Social security protection and national wage standards make him all the more potentially mobile in his outlook. And this is the point that may finally give some impetus to bona fide city and regional planning, for it means *qualitative* competition between one urban area and another. It is already coming over the horizon. The cities that take steps to remedy rather than extend these evils will gain an advantage. And the smaller independent communities outside metropolitan areas may gain a new lease on life if they take care to preserve and strengthen their present virtues of convenience, openness, and relative self-sufficiency, instead of merely yearning for skyscrapers and subways.

With an effective housing policy *plus* a positive land-use policy, we could channel almost all this development into neighborhoods grouped in communities large enough to provide decent services efficiently and with enough permanent open space for recreation and protection. All these communities could be located in some sort of sensible relation to present and future employment and many of them could be planned from the start as relatively self-sufficient towns, attracting new industries and the industries that will be moving out of older areas anyway. Such towns could be located wherever appropriate: some of the converted war plants now more or less isolated in open country might well form a nucleus of employment to begin with. But if they are satellites within a metropolitan orbit, then they should be well out beyond the present built-up areas, with a belt of permanent open space between.

"New Towns" . . . Why Not?

It is not an impossible Utopian idea. NAHO's famous 1934 report, *A Housing Program for the United States*, recommended it quite soberly, under circumstances much less pressing with respect to new outlying development than confront us today.

There are some steps we could take, here and now. We could extend the jurisdictions of local housing authorities and establish state or regional housing and development authorities. We could grant the power of eminent domain to states, local authorities, and limited dividend corporations for the acquisition of suitable sites for satellite or independent towns. We could approve long-term mortgage insurance for the acquisition of such sites and make public loans for the development of utilities. We could extend the scope of all state and federal redevelopment measures to include development of raw land. And we could make metropolitan cooperation and unified planning a condition of state and federal aid.

There is another and still larger aspect, of international significance. It has been claimed that planned decentralization along the lines here discussed, although of course infinitely more drastic, would be the only defense against atomic warfare. It seems improbable, however, that social-science techniques would ever keep pace with physics for long enough to insure civilian protection by any such means, once a war got started. But "defense" is not solely a military matter in this world.

Defense in our case is very largely a matter of proving to the world that our kind of democracy, based on individual freedom and private enterprise but with a considerable admixture of social control and public services, is not on the down-grade and can still solve its own domestic problems at least. It's not merely food that we must give the world. To the extent that we can demonstrate our capacity for progress, not only in technical proficiency and in maintaining full employment, but also in better housing and more efficient modern cities, to that extent will our influence have greater weight and our world be safer.

The 60-page pamphlet from which the foregoing excepts are quoted is obtainable at 25 cents per copy from the National Public Housing Conference, 1015 Fifteenth Street, NW., Washington 5, D. C.

Housing Principles And Program Summarized

The National Association of Housing Officials and the National Public Housing Conference, founded on the conviction that every American family should have suitable and decent shelter, believe that any effective housing program must be based on certain fundamental principles:

Enough homes
to overcome the present shortage, keep up with the increase in families, and replace the slums.

New homes for all kinds of people
in all income groups, for rural as well as urban families.

Good homes in good neighborhoods in pleasant and efficient communities
with its corollary, the elimination of slums and blighted areas.

Maximum opportunity for private enterprise
through a modernized building industry; sound finance on easy terms with adequate consumer security for all who want and can afford to own their homes; expansion of rental development; and special encouragement for well-planned, large-scale, nonspeculative housing enterprise, for rental and also for cooperative and individual ownership.

Public financial aid
for any part of the essential program that private enterprise clearly cannot accomplish alone.

Public initiative where absolutely necessary
to rehouse low-income families and get rid of slums and blighted areas.

Maximum local autonomy
with all initiative and direct responsibility at the local level, but with federal aid or subsidy where necessary and such minimum federal controls as to assure that the over-all national purpose is achieved with minimum risk and cost to the taxpayers.

A unified national housing policy
coordinated through a single federal agency and reflecting a bipartisan determination to achieve decent housing for all American families as quickly as possible, with first priority for veterans' needs.

BEACH PROTECTION

Protection by carefully designed bulkheads and groynes maintains Miami Beach's most important natural resources.

How it is done in the resort city of Miami Beach

By M. N. LIPP
City Engineer
Miami Beach, Fla.

IN our city, our beaches are among our greatest assets. Consequently to our engineering department, the protection of these beaches is one of our most important duties. By combining engineering studies with the invaluable experience that time alone can give one, authorities here have developed shore protection programs that keep the value of those beaches high.

As is the case in most portions of eastern Florida, the sand for these beaches comes perhaps as a unintentional gift, from the southeastern states in the Appalachian Mountains regions. Rivers in this area, particularly the Savannah, carry these sands to the ocean where shore currents deposit them along the beaches by wave action. Sands in the north portions of East Florida are essentially silica. Sands along the southerly portion have an admixture of shell emanating from the local limestone formations. The tendency is for the east coast beaches to be replenished and increased continuously. There are periods, however, when the elements, particularly during storms, will cause local erosion.

Damage from Man-Made Works

One of the man-made works that causes problems consists of inlets for navigation. The resulting jetties build up the beaches to the north, and cause erosion to the south. The greater the length of the jetty, the more pronounced the effect. Collectively, therefore, our coastal jetties impede the free and uninterrupted movement of sands to the south and diminish the supply necessary to replenish eroded beaches.

We feel that the Federal Government should have an interest in the solution of this problem. One possible means of solving this is to pump sand from the North side of the inlet or from the inland bay to the ocean front south of the jetties. It is preferable to pump from the bay as the sands deposited there serve no useful purpose, and tend to block off the inlet and interfere with navigation.

We face another factor in beach erosion because of our tendency to crowd the ocean by placing improvements too close to the shoreline. One may justify this where land values are high, but under ordinary conditions this crowding results in the need for expensive protective works that can cause only hardship and economic waste. On shoreline property, deep lots should be the unvarying rule.

Bulkheads and Groynes

For permanent protection, bulkheads along the shore and groynes perpendicular to the bulkheads and extending out into the ocean have been used successfully. Where there are no bulkheads, the groynes go farther inshore

to avoid the tendency of the ocean to cut around the inshore end.

Where there is a bulkhead, invariably there must be a groyne. Otherwise the beach might disappear and not be rebuilt. The groynes operate similarly to jetties. They allow aeration of sand to the north, but make erosion possible to the south. Consequently one must continue the system of groynes as far as the protection is required. When ending a system of groynes, one should gradually space them closer together and diminish their length.

In two typical systems in our city, the groynes are 200 feet long, and spaced 300 feet apart. In the other system they are 167 feet long with 250-foot spacing. The groyne length should be equal to two-thirds of the spacing, although it is not necessary to adhere to this strictly.

Size of Beach Important

The extent of the beach required is an important governing factor. One can use groynes of short length for residential property, and correspondingly lengthen them for hotels or public beaches. In every case one should provide sand in front of a bulkhead so that the waves will break on the shore rather than against the bulkhead. Water constantly striking a bulkhead creates spray that is annoying and lessens the life of the structures subject to corrosion.

Groynes frequently receive intense wave action. Steel corrodes and often is worn away by the sand. Timber, even though treated with preservatives, is attacked by the Teredo. Concrete shatters by the persistent force of the water. Groynes must be designed with the recognition that maintenance costs are high.

What Experience Showed

The first groynes in the Miami Beach area were of 18-foot steel sheet piping supported by creosoted timber wales and piling. Later experience showed that eddies at the ends of the groynes form deep water and undermine them. Consequently the practice was adopted of using longer steel sheet piling driven into the rocks at the outer ends. Even this caused some trouble, however, because of the differing rigidity of the two foundations.

Future extensions of the system will incorporate further improvements. Groynes will consist of steel sheet piling and steel bearing pile supports. Steel sheet piling will be of 18-, 20-, and 24-foot lengths, varying as the groyne extends from the shore. This should provide more uniform stability throughout the entire structure. Steel bearing piling will be driven into rock to secure a toe-hold not heretofore obtained with creosoted piling. The steel wales will consist of channels filled with concrete, with the legs of the channel projecting upward.

One method of strengthening the outer ends of the groynes is by placing granite blocks. This, however, is expensive unless the granite is close by.

In the future, with groynes of 200-foot length, the inshore elevation will be 6.5 feet above mean low water, the center elevation 4.5 feet, and the outer end 1.5 feet. The outer end we place as low as possible consistent with working conditions.

Bulkhead Design

Bulkheads represent the final barrier to the encroachment of the ocean. These must resist wave action and backfill pressure. When using steel sheet piling, they must be of such length that there will be no danger of undermining. Bulkheads should be concrete structure with toe walls. It is a mistake to place complete reliance on the ability of the groynes to develop and stabilize the beaches.

To resist backfill and the thrust of wave action, sheet piling must be anchored to the rear. The buried portion of the steel does not deteriorate but the upper portion is affected by the corrosion. However, inexpensive concrete copings can be provided if needed.

We have no problems here determining the height of the bulkhead. The top coincides approximately with the backshore terrace. The top elevation is 8.5 feet above mean low water, which means it is above the ocean water at all times except during such hurricanes as the big one that occurred in 1926. To build a bulkhead that would hold back a hurricane not only would be unjustified, but would impair the appearance of the beach and the view of the ocean.

Local Authority Important

We feel that local governmental agencies should have the power to establish bulkhead lines and groyne limits. Without such control, unreasonable, selfish individuals can embark upon land-grabbing programs with injurious results to their neighbors.

Private interests have requested War Department permits for dredging sand from the ocean, inlets, and bodies of water immediately to the rear of inlets for commercial purposes. In all cases where the local authorities have felt that such operations will increase erosion, they have filed protests with the War Department. In some cases where the areas were in inlets and to the rear of them, permits have been granted despite the objections of the local authorities. The submitted objections were based on local knowledge of erosion and upon the principle that prevention of erosion is vital to public interest.

Thus it is obvious that the problem of beach erosion can be resolved by thoughtful analysis. Sand in the inlets should be pumped back into the ocean. Future inlets should have provisions for the uninterrupted natural movement of the sand. Private property owners must realize that the most economical and simple solution to erosion problems is to place their improvements a sufficient distance away from the shore in order to obviate the need for expensive protective works.

Fargo Aquatic Stadium

This Swim Stadium, recently constructed in Fargo, N. D., makes for greater interest in aquatic contests on the part of spectators, and adds to the value of the pool for purposes of general community recreation.

"Chest Expansion" Signals

Furniture city tackles tough civic problems behind established leadership of community chest

By R. L. HUTCHISON

THE Metropolitan Grand Rapids Association, lusty offspring of the local Community Chest, has made its most recent demonstration of practical usefulness in the setting up this year of a city-wide master parking plan. This will provide ramp garages in the downtown area and several parking lots downtown and in the outlying business areas, the whole to be covered by a bond issue. The outlying area participation was the part especially sponsored by the Metropolitan Grand Rapids Planning Association, with the help of its Suburban Association Committee.

A bit of history may be of interest.

Growth Brings Pressing Problems

Back in the days when its hand-made "golden oak" furniture ornamented the most fastidious parlors, Grand Rapids was a compact, middle-sized, prosperous city with its own fastidious standards of community life to maintain.

Still the furniture capital of America, the city has changed as its product has changed. But there the comparison ends. With growth have come pressing civic problems, hardly comparable to the mechanical obstacles so efficiently overcome in translating individual furniture craftsmanship into assembly-line techniques.

Grand Rapids' civic problems are complex. They involve human attitudes. It was in recognition of this relationship to the personal welfare of their fellow citizens that the business leadership turned to the Community Chest to set up a planning agency.

That was three years ago. How has the experiment worked out? Is it sound logic to call on a Community Chest to do something more than collect and disburse funds to health, welfare, and character-building agencies? The affirmative answer is found in the growing support given to the Metropolitan Grand Rapids Planning Association, in the organization of which the Community Chest took the leadership.

Budget and Staff for Planning

To start the ball rolling, substantial business and industrial interests pledged $20,000 a year for five years. They made Chester Ridge, executive secretary of the Community Chest and Council of Social Agencies, the executive vice-president of the Planning Association. To serve as a full-time executive head, Mr. Ridge's associate, Willis W. Atwell, was named assistant secretary. He has remained on the Chest payroll so that the Association budget can be stretched as far as possible to cover research and promotion costs and a small clerical force.

Mr. Atwell, a former newspaperman, edits a readable, crusading monthly publication called *The Metropolitan Planner*. Through feature articles, maps, graphs, and pictures, it hammers away at such issues as rerouting of highways, relocation of rail lines that now spread in a traffic-choking web through the downtown area, extension of water and sewerage facilities, city zoning, and other matters vital to the public welfare.

George S. Clarke, president, Metropolitan Grand Rapids Planning Association

Spearheading this vigorous movement is George S. Clarke, a wholesaler and civic leader, whose forthright editorials in the *Planner* are a clarion call to all citizens to join in the effort. For $1 anyone can obtain a membership and have a voice in the Association. It is that rare thing, citizen participation in abstruse matters of urban development on a continuing basis rather than in sporadic outbursts of civic conscience.

Industrial Development and Zoning

The war boom largely by-passed Grand Rapids. The citizens, having observed its effects elsewhere, harbor no regrets now, although they had their depressed moments when the spending orgy was in progress. However, there has been considerable industrial development in recent years with new factories locating in suburban areas.

Little settlements have sprung up around the factories. In some cases, extension of city water and sewerage facilities was possible. In others, less sanitary conditions prevail. The inevitable jalopy graveyards have blossomed on highways. Traffic bottlenecks have developed. There is an old unsolved problem of controlling infrequent but bothersome floods along the Grand River, blocked by dams along the channel which bisects the business district. To stimulate action on this problem, the Michigan Department of Economic Development, at the request of the Metropolitan Grand Rapids Planning Association, held a flood-control hearing in Lansing on April 15, with all the com

Greater Grand Rapids

Because of the city's flood walls, Grand Rapids did not suffer as severely from the 1948 floods as areas above and below the city. This view, taken south of the city looking northeast, shows how the rest of the metropolitan area was hit. The section illustrated has considerable industry lying in a subterranean watershed which is difficult to drain when the river is high. Basements more than a mile from the Grand River were flooded.

munities on Grand River represented. It is hoped that some effective regional planning will result.

The old residential section of Grand Rapids is adjacent to the main business districts, but protected from commercial encroachment by a hill which forms a natural boundary. But many of the fine old homes were being cut up into miniscule apartments that foretold an early decline into tenements when the planners acted.

That action took the form of pushing through a legislative enactment which gave Grand Rapids a new zoning ordinance. It became law recently after fourteen months of sniping and outright opposition which failed to deter the Association from achieving its objective. Under the new law, off-street parking can be enforced and radical alteration of residential areas avoided. The zoning board of appeals' powers are redefined to prevent extensive variations.

Another objective of the city planners calls for revision of the city charter to broaden and clarify the powers of the city manager. It already has succeeded in the reestablishment of the City Planning Commission, with a full-time director and staff.

After an extensive survey of the transportation needs of Grand Rapids, East Grand Rapids, Grandville, and the four adjoining townships, the Association has secured approval of a comprehensive thoroughfare and expressway plan.

Expert guidance has been obtained from various sources. Ladislas Segoe, city planning engineer, is employed as a consultant. The Bureau of Business Research and the Bureau of Government at the University of Michigan have sent specialists at Association expense into the area to make studies of various kinds.

Just now, the Metropolitan Grand Rapids Planning Association is girding for a major effort. It wants Grand Rapids' four railroad lines, the Pennsylvania, the C. & O., the New York Central, and the Grand Trunk, to get together and do something about the multiplicity of grade crossings. As usual, it will enter the lists with an impressive array of facts — statistics, such as the blocking of 39 major crossings for an aggregate of 50 hours daily, delaying 10,000 cars every 12 hours.

"Facts are valuable weapons in our fight for a greater, more prosperous Grand Rapids," Mr. Clarke commented. "But even more valuable is the aroused conscience of the citizens to the necessity for self-improvement through united effort."

A shot taken from Area #1 toward Area #2 with Incinerator #2 in the far background. The open space between the two fills is being used this summer. Note the stock piles of cover material on Area #2, used for leveling if required.

Controlled Landfill at Baltimore, Md.

By HENRY W. TAYLOR
Consulting Engineer
New York, N. Y.

and

GEORGE H. ELLIOTT, *Associate Engineer*
Bureau of Mechanical-Electrical Service
Department of Public Works, Baltimore, Md.

IN the January 1945 issue of THE AMERICAN CITY, Mr. W. Rayner Straus, Mechanical-Electrical Engineer of the Department of Public Works in Baltimore, Md., contributed an article entitled "Use of Landfill in Baltimore to Continue After the War." After four years of operation, it is appropriate to review the methods and appraise the results.

It is not the purpose to draw general conclusions as to the efficiency of the controlled landfill. It is intended, however, to tell what has been accomplished in Baltimore since 1944, to relate the special characteristics of operation and the results obtained as indicated by a recent inspection of completed and uncompleted areas.

Baltimore's refuse is collected under the triple separation of garbage, rubbish, and ashes. An existing incinerator, located adjacent to the landfill areas, is operated by a salvage contractor. The city supplies him with such rubbish as he may designate. This is picked over for tin cans, paper, and cardboard, and the remainder is incinerated. A second incinerator of 600-ton capacity disposes of mixed garbage and rubbish. The controlled landfill method thus disposes of the remaining refuse and receives garbage, rubbish, street dirt, and ashes, delivered in separate trucks. This amounts to about 50% of the city's total.

A preliminary statement of the various types of refuse delivered to the landfill area during 1947 is given below:

Garbage	44,230	tons
Mixed refuse	11,463	"
Rubbish	82,092	"
Ashes	26,456	"
Street dirt	13,419	"
Market refuse	9,634	"
Total	187,294	"

The City trucks discharge their loads of refuse onto the flat area at a distance from the face of the land fill.

A bulldozer pushes the refuse to the face of the fill. Garbage, rubbish, street dirt, and ashes are deposited.

The fills are located in the easterly section of the city, about one mile from the city limits, near a water course called Herring Run. Adjacent to the area is a new housing development known as Armistead Gardens. Facing other portions are residential properties. Two of the areas are within 400 feet of these properties. For the immediate future the area now being filled has a north and south dimension of about 3,000 feet and a width of 1,000 feet.

Area No. 1 was originally occupied by an old reservoir covering 14 acres. On its southern boundary is the original dike separating it from a second reservoir. Between areas No. 1 and No. 2 a 48-inch concrete storm-water drain has been constructed, and the immediate area on either side of this drain has not been filled. It will probably be used this summer, so that fill areas No. 1 and No. 2 will be joined.

All three areas required much preliminary work. The shore-line slopes or the old reservoirs were excavated to produce a steep face. Diking and drainage were necessary in area No. 3, since part of it was lower than the stream and therefore readily flooded. Top soil was removed where possible from the No. 3 area, and this plan will be continued as the fill advances north.

Sandy Soil Proves Asset

The Valley of Herring Run is covered with loam underlaid with yellow sand and pea gravel. The characteristics of these underlying strata have proved to be a considerable factor in the success and workability of the method. The sand and gravel, excavated by the dragline, are used for front and top cover of each cell. The top cover is from 2 to 3 feet thick and the excavated gravel and sand constitute a surface for trucks and equipment, so that during the wettest weather there is no bogging of equipment and no need for tractors to assist trucks. Neither is there the wear and tear on truck and handling equipment that results from travel on soft cover, nor the strain upon this equipment of pulling it out of mired holes.

The material, furthermore, is sufficiently porous to permit the steady escape of gas as it is formed from garbage digestion. Green cells have produced bubbles in the moisture of the sand and gravel on rainy days, indicating an even distribution of this escapement. The materials also furnish resistance to rodent digging and are not suitable for rodent nesting.

Settlement Not Excessive

A recent inspection of two completed areas has indicated only minor local settlement which has produced isolated small pools of water less than 3 inches deep. A passenger car driven through these areas neither bogged nor slowed materially because of lack of traction.

The fill areas are assigned a finished grade with adequate slopes for drainage. The fill is kept high enough above the predetermined finished grade to allow about 1-foot settlement in the first nine months and an additional 6-inch settlement in the next two years. This formula has apparently worked satisfactorily for these two areas. However, area No. 1, a section built in 1945 of rubbish only, has resisted settlement, producing a differential of about 6 inches.

Area No. 2 was completed in 1947. It has stock piles of sand, gravel, and top soil held in reserve to correct any local settlement.

The Pulaski Highway bounds the area on the south. To shield the area from view and to intercept flying papers and dust, an 8-foot earth dike was erected. However, the street shield does not, on a windy day, protect the adjacent area too well from the escaping papers The streets must be cleaned by laborers two or three times a day.

All trucks first go to the scales at Incinerator No. 2, and are given weight tickets which are surrendered to the man at the dump who directs the placing of the trucks. The trucks dump at a location some 30 feet away from the face of the new slope. The width of the cell for any day's operation is dependent upon supplying a sufficient area for truck maneuvering and ranges from 75 to 150 feet in length.

Three pieces of equipment are used in the work.

One is a Bucyrus-Erie, Model 33-D dragline crane, equipped with a 65-foot boom and a 1½-cubic-yard dragline bucket. This equipment has a total weight of 42 tons.

The second is a R-D-8 Caterpillar tractor, equipped with a LaPlant-Choate cable-controlled bulldozer attachment. The dozer blade is 11 feet long and 3 feet 6 inches high. This equipment weighs 21.8 tons.

The third is an R-D-8 Caterpillar tractor equipped with a 14-cubic-yard LaPlant-Choate scoop, cable-controlled. The total weight is 28 tons.

The trucks dump on the flat area representing the top of the formerly completed fill and then drive away from the sliding load of refuse. The bulldozer pushes these loads to the edge of the fill, the scraper being raised as the bulldozer approaches the top angle of the fill in order to leave it about 4 feet higher than the completed cell behind it. The heavy bulldozer, in maneuvering between the trucks, banks of stored cover material, and the heaps of refuse, travels over three or four of the previously completed cells, producing continued compaction for several days.

The dragline rig excavates during the morning for a new cell and stores cover material for it. In the afternoon the dragline rig is moved to the new cell and puts the cover material on the face of the refuse deposited in the new cell. This cover material represents about 6 inches of facing for the new cell to maintain a coverage for a few

▶ **Flushing equipment sprinkles the completed surface and lays the dust. This equipment also is available for use in putting out fires.**

▼ **This is the way the fill looks while the dragline is covering the accumulation of refuse. The heavy dragline working on the fill face helps compact the refuse.**

days until this area becomes the back face of a new cell.

The face of the new cell is maintained high. The dragline equipment performs another service by dropping the scoop, loaded with cover material, on the ragged contour of the face slope, slapping down cartons, barrels, boxes, and straightening the slope line to a fairly consistent contour. This operation of face cover generally takes about two hours. The next morning the dragline rig is moved to the location of the cell for the following day, where it digs material for top-cover storage and excavates for an added depth of fill. Top cover is installed by the bulldozer from stock piles, or by the dozer and dragline working together.

A tractor with a 12-yard scoop also traverses the former cell areas and brings in from remote points additional fill for cover and storage. The cells are thus compacted by the refuse trucks, by the Caterpillar bulldozer, a dragline bucket rig, and a tractor scoop.

An important factor in this landfill operation is the character and weight of the equipment used as tabulated below:

1 dragline	42	tons
1 tractor bulldozer	22	"
1 tractor scoop	28	"

The fill operation is completed in an eight-hour daylight shift. Any late loads are rejected at the dump and placed in the refuse pit of the incinerator. The labor force for the eight-hour shift consists of one superintendent, one foreman, one chauffeur, two laborers to direct the truck to the fill, two laborers for keeping the adjacent area clear of flying refuse and miscellaneous work, an oiler and an operator for the Caterpillar dragline, an operator for the bulldozer, and the operator for the tractor-scraper. Two watchmen are provided for the remaining two shifts.

Surface Fires

During the period from April 1944 to the present, less than 10 surface fires have been experienced on the face of the current cell. These fires are not internal, but result from live ash dumped on the face of the current cell and are quickly extinguished. In none of the fill areas are there any rodents. Some flies are reported on the current cell during a summer day, but after the facing cover has been installed, the night watchmen notice none.

There was an initial fear on the part of the adjacent property owners of the effects of the landfill operations in their vicinity. On the other hand, as soon as these property owners saw the methods used, their complaints were withdrawn. Furthermore, the No. 2 and No. 3 areas before diking and drainage were notorious mosquito-breeding swamps, and the fill operations have eliminated this condition.

Where excavations extend below the groundwater level, water pools in these excavations receive the fill leachate. At this time of year no odor was recognized but during the summer months this condition is neutralized by disinfectants and deodorants. No effect of leachate has been noted in Herring Run itself.

Digestion Temperatures of 150 Degrees

Such explorations of green cells as have been made have indicated digestion temperatures of over 150° F. Test pits in old cells have shown evidence of a materially completed garbage digestion but little break-down of rubbish when dissociated from garbage.

The operating costs of this landfill method of disposal have averaged less than $0.50 per ton. Equipment is rented, and no depreciation is involved in computing the operating costs. The operating costs, including administration expenses, are stated as $0.353 per ton for the year 1946.

Area No. 1 had definitely determined space of 14 acres within the limit of an old reservoir, whose surface area had been accurately surveyed. Within this area, between April 17, 1944, and December 5, 1945, 808,114 cubic yards of refuse were disposed of, representing about 1.4 cubic yards per square foot of surface area. The average depth of fill is taken at 19 feet, and the vertical prism below a square foot of surface represents 19 cubic feet, into which about 38 cubic feet of loose refuse was compacted, giving a compaction ratio of about 50%. The cubic yardage has been estimated from spot checks of trucks. All material delivered to this area was weighed, and the tonnage represents 261,739 tons for the whole operation, or about 0.43 tons per square foot of the completed area, giving an average density per cubic foot of the compacted material at 45 pounds.

In the preparation of this article, acknowledgment is made of the cooperation of W. Rayner Straus, Mechanical Electrical Engineer in the Department of Public Works. Reference has also been made to the Report on Refuse Collection and Disposal for the City of Baltimore by Dr. Abel Wolman, Professor of Sanitary Engineering at Johns Hopkins University in Baltimore, and the annual reports of the Department of Public Works.

Camera Cure for Rats

Cameras in the hands of health inspectors have done much to rid one city of the pests

BY arming its inspectors with cameras and sending them out to take pictures of insanitary conditions about the city, the Minneapolis Health Department has succeeded in gaining citizen cooperation for the cleaning up of rubbish piles and other rat-breeding places. Where spoken warnings and even threats of court action have failed, pictures sent to the offenders with a warning attached usually result in a hasty clean-up of their premises.

The idea originated with J. J. Handy, Director of Environmental Hygiene in Minneapolis, over two years ago. At that time the Department was concerned about the effectiveness of its anti-rat campaign. Most residents cooperated willingly but others simply did not do their share and allowed accumulated garbage heaps and filthy home situations to foster the rat population growth.

This is the usual type of trash pile that the camera campaign has done so much to curb. Rotting scrap piles like this are natural feeding and nesting places for rats.

It was as a last resort that Mr. Handy tried the camera technique, achieving success in almost all cases. He states that the use of cameras offers two advantages. The first is purely psychological, in that people do not like to see the results of their own neglect. The second advantage is that the pictures can be used as evidence against inveterate violators of health ordinances.

The inspection division of Handy's department has several sections. Six men cover dairy farm inspection. Two inspect pasteurization and retail raw milk. Two others inspect meat. The largest section, with 18 men, covers food, sanitation, and the investigation of complaints. It is this last group that uses the cameras.

RICHARD T. TORKELSON

"Building Block" Expansion With Duplex Unit Substations

By H. J. WHEELER
Sales Engineer
General Electric Company
Los Angeles Office

THE Los Angeles Department of Water and Power is building new distribution substations on a "building block" arrangement. These call for small sections that provide capacity for the present and can be added to quickly and easily in the future.

Department engineers faced these problems. They needed first an electric distribution station that would harmonize with the surrounding territory. They required next a station that would meet the existing load with an investment justified by the load. And finally they wanted a station with space requirements provided for future expansion if and when needed.

Equipped for Future Expansion

This multi-feature problem was solved by developing Distributing Station No. 51. It incorporates several modern duplex unit substations, with some of the units installed now and provision for the rest to be installed later as load demands require additional feeders. When Station 51 goes into operation it will have eight individually regulated feeders supplied by four duplex unit substations; ultimately it can supply 16 regulated feeders.

Each of the duplex units consists of two 2,500/3,125-kva transformers, 34.5 to 5 kv. This rating correlates with the present standard used in the Los Angeles' distribution system, which consists mainly of relatively large stations and individually regulated feeders.

Waste Is Eliminated

Savings in investment and investment carrying charges will be realized by the layout adopted for Station 51, as compared with previous large designs, since the unit substations for the additional feeders will be installed only as the load grows and investment will match the load growth. By using the "building block" approach, the waste that would result from installing excess capacity to provide for future growth is eliminated.

Los Angeles will benefit in many other ways from the use of duplex unit substations in this station. One of the benefits is a reduction in land area required for the station. A marked saving in real estate costs has been effected by use of duplex unit substations.

Another benefit results from the ease with which the unit substation lends itself to architectural treatment. The City of Los Angeles has taken full advantage of this feature of the unit substation in the design of Station Number 51. The cost of an expensive building has been saved, since the substations are weatherproofed for outdoor installation. No more than a simple inexpensive wall has been necessary to enable the station to contribute as much to the beauty of the neighborhood in which it is located as would a public library or similar building.

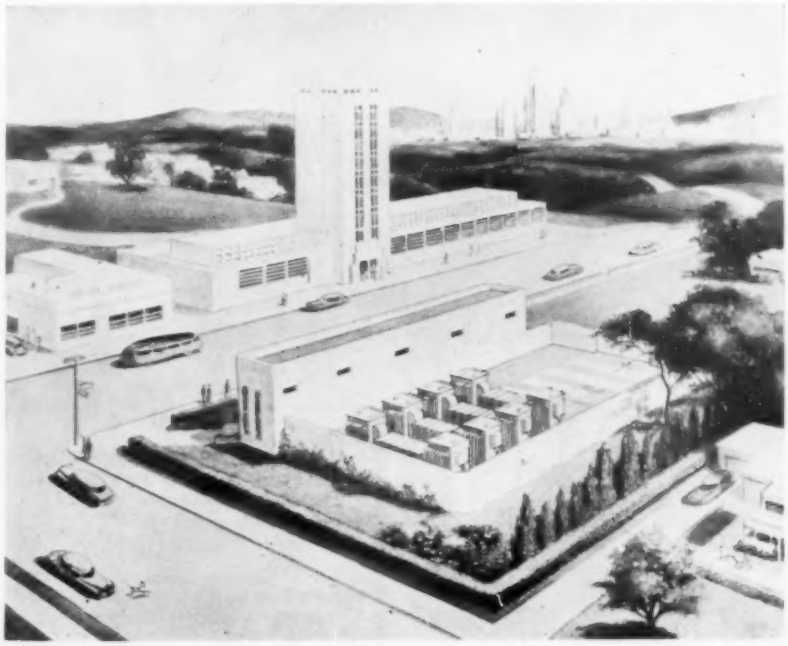
From a system point of view, the station has a high degree of reliability, because there are two complete paths of power supply to each outgoing feeder. Each duplex unit substation supplies two feeders and has by-pass facilities for each feeder circuit breaker and each transformer. The entire station will be completely automatic and supervisory controlled. Even as the station grows, reliability remains at the same high level because each duplex unit substation is self-contained.

Advantages of Unit Substations

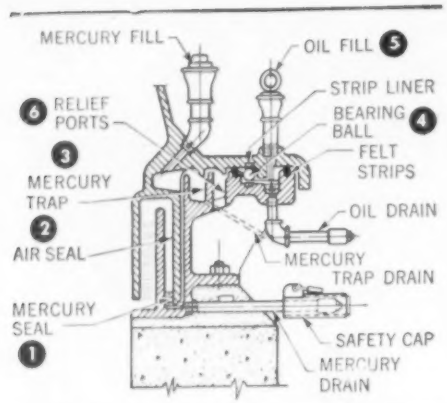
Satisfaction of power consumers in the area served by the station is assured because voltage on each of the present and future feeders will be maintained at the proper level. This is achieved by having only one feeder connected to each transformer under normal conditions. Each transformer is equipped with automatic voltage regulation equipment for changing taps under load.

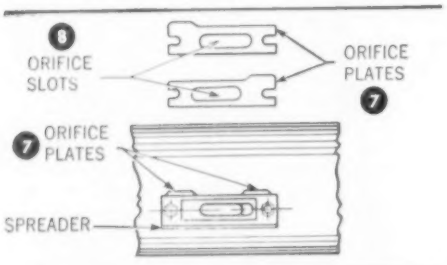
Simplified purchasing, ease of installation, economical use of space, and centralized responsibility for the equipment with one manufacturer are additional benefits obtained by Los Angeles through specifying unit substations. Preparation of just one set of specifications and placing of one order was all that was necessary for all the unit substation equipment included in the distributing station. Engineering effort and time that would otherwise have gone into an immense amount of detail design work and specification preparation have been saved and made available for other work on the city's distribution system.

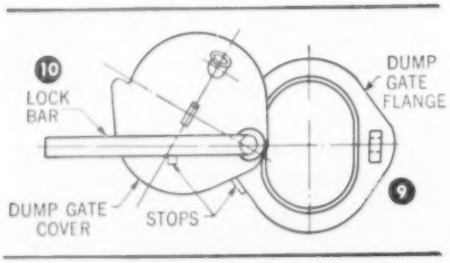
The unit substations will be shipped in completely assembled sections as large as practical, consistent with ease of handling, and will need only to be placed on foundations, bolted together, and connected to incoming and outgoing lines. The labor, time, and expense that would have gone into field assembly of a piecemeal substation will be saved.



An architectural rendering showing how the new substation will look.







CHECK THESE Dorrco Distributor FEATURES

against high-rate trickling filter requirements

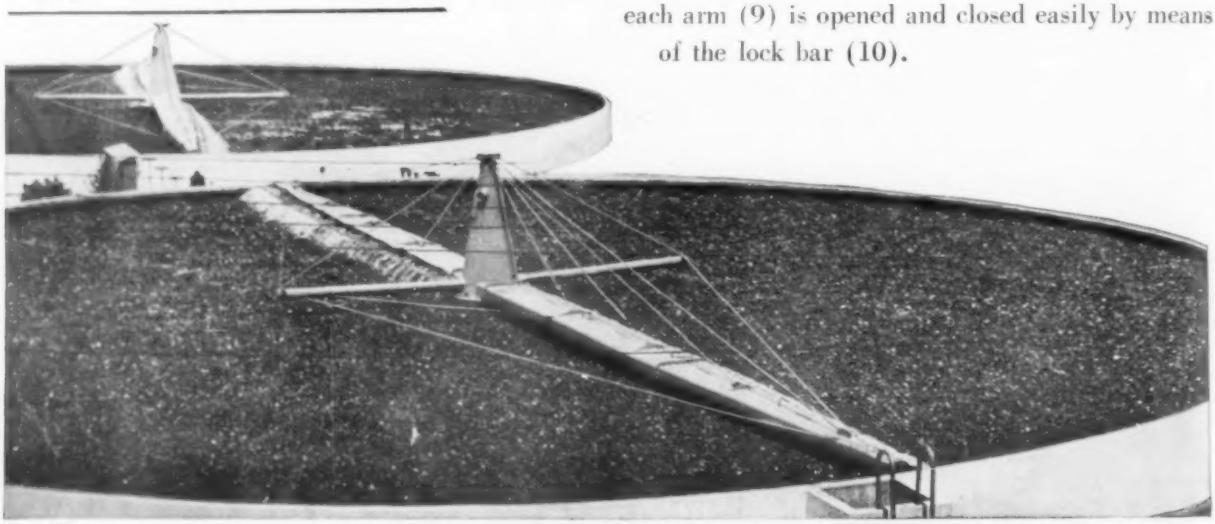
Distributors for high-rate trickling filters have to be *mechanically* right to handle heavy loadings. Check these mechanical features of the Dorrco Distributor against those of other units. . . .

MERCURY SEAL . . . between rotating and fixed element (1)... is protected from contact with sewage by a positive air seal (2). In case of excess surge of pressure sufficient to blow the seal, the mercury is caught in an annular drain trap (3).

BEARINGS . . . Large diameter ball bearing race (4) running in oil at *base* of turntable for stability . . . is easily lubricated (5). Relief ports (6), provided for emergency overflow, prevent flooding of bearings under any circumstances.

ADJUSTABLE ORIFICE PLATES . . . Two separate sliding plates (7) are bolted one upon the other to permit final flow adjustments. Orifice slots (8) are elongated to minimize clogging.

QUICK-OPENING DUMP GATE . . . provided at the end of each arm (9) is opened and closed easily by means of the lock bar (10).



Dorrco Distributors are available with two or four arms . . . having one or two compartments. On heavy duty units, the arms are of fabricated steel plate . . . tapered for better hydraulic performance and more uniform distribution. *The sum total of all these points is smooth Dorrco Distributor performance under the most severe of operating conditions.*

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What Industry Expects of a Community

A VIGOROUS and progressive company in selecting a site for a new industrial plant takes many factors into consideration. The most important of them are summarized in a recent pamphlet,* "What Does Industry Expect of a Community?", by H. Y. Bassett, Vice-President and General Manager, Wolverine Tube Division, Calumet and Hecla Consolidated Copper Co.

It is not merely such advantages as nearness to raw materials and markets, availability of power and transportation facilities, and a suitable labor supply that influence the selection of the town for a new plant site by such a company. Says Mr. Bassett:

Community Services and Facilities

Of primary importance to any industry are the services and facilities which a community has to offer. Many of these assume tremendous importance to smaller industries. Among these may be mentioned the public-school system, including vocational training, library facilities, etc.; churches; recreational facilities; health services; sewage-disposal practices; public utility systems, such as gas, power, water, local transportation, etc.; police- and fire-protection facilities; streets and highways; the efficiency of city, county, and state governmental administrations; the general attitude of city officials, as well as of county and state public officials, toward industrialization of the community by outside business interests, and the attitude of the general public and industries already established toward further industrialization. Important also, as a matter of course, are city, county, and state debts and fiscal policies, and tax programs, past, present, and projected.

Following this general statement, Mr. Bassett discusses briefly the various factors cited, and adds:

Subsidies to Be Avoided

It is my feeling that both community and industry should avoid subsidies in the form of land grants, buildings, etc. Unless a town has those things which a particular industry requires, it is not the place in which that industry should locate a plant. The granting of subsidies might influence the opinion of management's representatives and lead to the selection of a given town; but in the long run if certain basic factors are lacking in the town's makeup, the choice so made will be an unhappy one for both the community and the industry. Where an industry contemplates the expenditure of large amounts of money for land, buildings, and equipment, the value of the land represents usually a small percentage of the total outlay, and rarely, if ever, would the donation of land for a plant site influence the selection of a community. There is too much involved to permit a management to overlook shortcomings in the basic requirements in return for a free plant site. Furthermore, most managements want to be free of any feeling of obligation to the community or to individuals in the community, which most surely exist where subsidies are granted and accepted.

Generally speaking, the same comments apply with respect to tax exemptions. Most industries feel a definite obligation to the community in which they locate and want to assume their share of the cost of public facilities and services offered by it. While it is extremely difficult to evaluate the worth of the public services and facilities offered, comparative studies usually will provide bases for sound conclusions. Such comparisons will vary, depending on the industry involved, its requirements as to those services and facilities, size, etc.

But Taxes Must Be Fair

Mr. Bassett points out, however, that it is obviously unfair to go to the other extreme and penalize the new plant by assessments and taxes out of line with those charged to established industries. He also says:

There are certain directions in which a community can make very important contributions which would not be classified as subsidies. Once a town has been selected, many problems face management. These include working out with the community the solutions to problems usually present with respect to power, gas, and water supplies, sewage disposal, roads to the new facilities, housing of personnel transferred from the old location to the new, the obtaining of the cooperation and advice of the managements of the other industries in the town to establish sound relationships, and the coordination of policies and practices with respect to labor and management personnel. There are many, many wholly legitimate ways in which the local people can assist.

Success of Industry Important

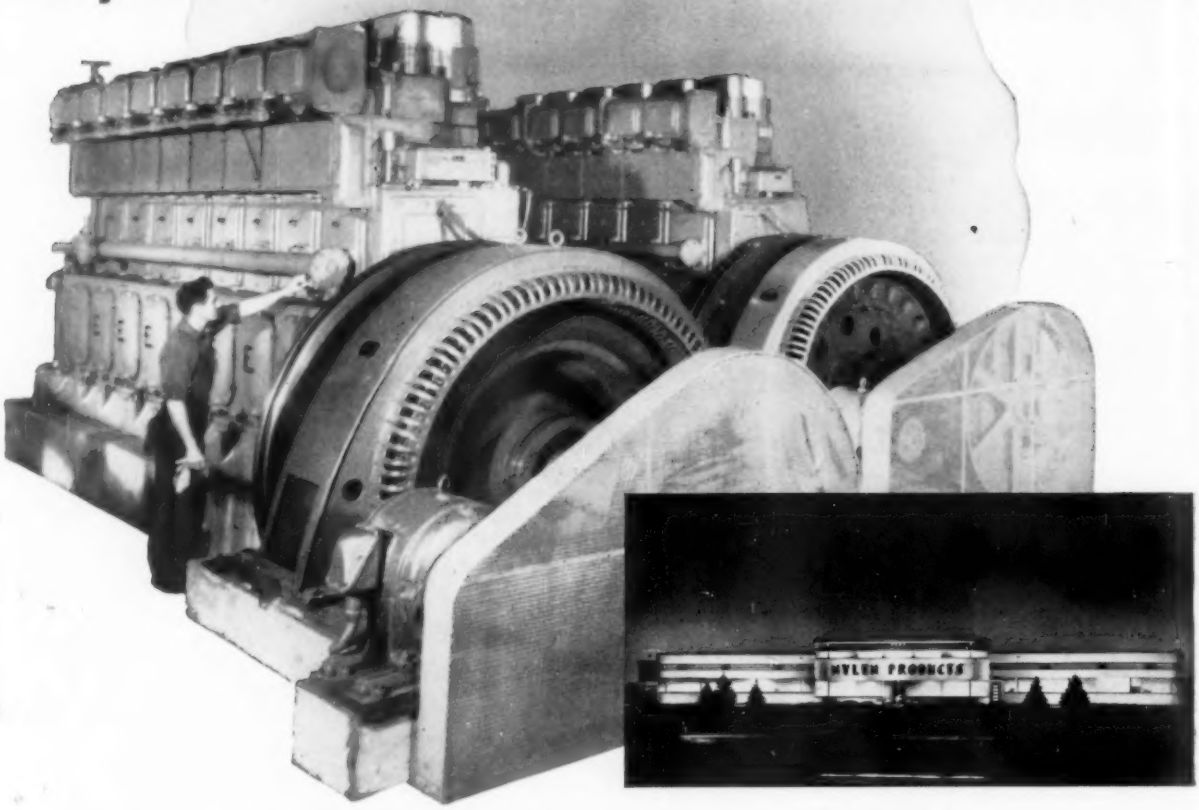
The success of a new industry in a town is of paramount importance not only to the industry but to the community itself. Nothing can affect the industrial growth of a town more adversely than the introduction of industries which after a few years will move on to other locations or, because of an unfavorable situation, will be compelled to continue operations under unsatisfactory and unhealthy conditions. Misrepresentation to management by townspeople or by management to townspeople should be avoided at any cost. A frank and open discussion of both the good things and the bad which community and company have to offer each other should enable management to arrive at a correct decision with respect to location. Then those things which are bad are recognized by both. Management's representatives know of them before they make the selection, and there should be no recrimination once they have located a plant in the town and find out that certain desirable elements are lacking.

* Available from the Bureau of Public Administration, University of Alabama, University, Ala.

Manchester, N. H., Welcome Sign

Here is one of the six new welcome signs which are being erected at the major approaches to the City of Manchester, N. H. Says Mayor Josaphat T. Benoit, "I believe that these signs are unique in the country, combining four principal service clubs, the Chamber of Commerce, and the city in one colorful welcome, with all the organizations sharing in the cost in a practical show of local unity. The people of Manchester are proud of this unity of sentiment and believe they are setting an example for other municipalities."

They have POWER NOW • with an Eye to the Future



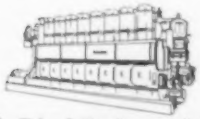
Why Nylen Products Co. installed 2 ENTERPRISE DIESELS in its St. Joseph, Michigan plant

Nylen Products Company manufactures precision equipment for the great automotive and refrigeration industries. All power for running Nylen's extensive operations is supplied by their own diesel electric generating plant. Needless to say, this power *must* be continuous, adequate—completely dependable.

Aside from installing more power *now,* however, Nylen had the problem of selecting units which could later be converted to provide even *greater* KW output. Enterprise diesel engineers had the answer to this problem in two engines specially designed for quick conversion to turbocharging at any time in the future. This includes such turbocharged equipment as enlarged water, lube oil and fuel oil pumps, air intake connections, oversized waste heat boilers. The Enterprise DSQ-8 now develops 700 KW non-turbocharged, is direct connected to an over size generator capable of delivering 1125 KW when the diesel is eventually turbocharged. A similar rate of stepped-up output is also available with the conversion of the smaller DSQ-6. Conversion time and trouble are minimized through the special design features.

Whatever your power problem, it will pay you to ask us to show you the many advantages and improvements in power application available in Enterprise Diesels.

Choice of Power Experts . . . Everywhere



4 Cycle Diesel Engines and Generating Sets up to 1800 HP per unit, turbocharged or normally aspirated.

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Offices in Principal Cities

Digester Gas Goes to Work

. . . for the Oxnard, Calif., sewage treatment plant

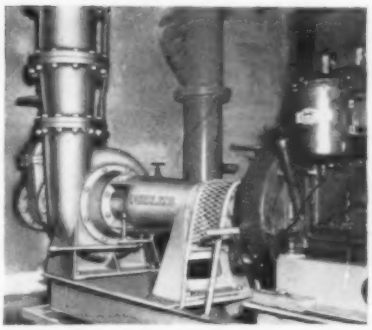
By ORRIN L. ISHAM
Superintendent of Water and Sewage

DIGESTER gas does the pumping in the sewage-treatment plant serving Oxnard, Calif. The gas powers a specially equipped stationary gas engine that operates a 3,000-gpm Peerless sewage pump. As a result the plant saves $100 a month, lopped off the city's fuel bill in round-the-clock operation, interrupted only once a month for engine-oil change. This economy is in face of the fact that the city lies near the Ventura oil fields, where some of the most extensive sources of natural gas in Southern California are located.

Generation of the sewer gas is speeded by utilizing heat from the engine's cooling system to heat the digesters that supply the gas. Cost of operation of the pump, with the sewer gas hookup, is only $1 a day.

A stock Enterprise gasoline engine was provided, for which a special carburetor and manifold were to operate, with a maximum combustion on sewer gas. At first the high sulphur content of the gas threatened the equipment on account of the manner in which combustion, with this factor involved, attacked chamber and valves. However, the sulphur problem was solved by simply raising the temperature of the engine's operation to 220 degrees, neutralizing the corrosive action.

Higher operating temperature for the engine was accomplished by insulating the water inlet pipes. Coils carrying the hot water from the engine jacket were then circulated through the sewage digester.



The Peerless pump, which circulates sewage through the system, connects directly to an Enterprise gasoline engine operating on digester gas.

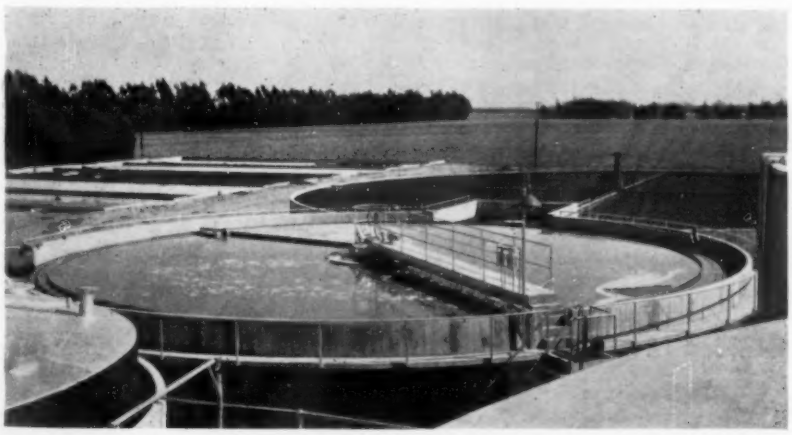
The sewage system at Oxnard was designed and constructed in 1945 to serve a population of 30,000. It provides complete treatment and consists essentially of a Dorr primary clarifier, two 145-foot trickling filters, and a Dorr secondary clarifier. Sludge is handled in two primary digestion tanks and one secondary tank with a gasholder cover. The sludge is dried and sold in bulk for orchard fertilizer. Total pumping equipment includes one 750-gpm driven by a U. S. Vari-drive motor, one 1,000-gpm operated by a Sterling Varidrive motor, one 2,000-gpm direct-connected motor, and one 3,000-gpm pump operated by the Enterprise gas engine. The speed of the gas engine is controlled remotely from a float and rheostat.

The plant serves a population of 24,000 people, but has been taxed by additional industrial loads. In one of the latter, a ton of chopped beans, pods, and fruit is passed into the sewer, adding a burden to the plant equal to an additional 10,000 population. To correct the heavier pollution load on the effluent, Superintendent Isham is chlorinating the effluent heavily and has added a 400-pound Wallace and Tiernan Automatic Program Control chlorinator. This adjusts the chlorine loading throughout the day in accord with the anticipated loadings that experience has shown will probably occur.

The average flow of the Oxnard system is 2.6 mgd in 24 hours with a peak rate of 3.8 mgd between 10 a.m. and 1 p.m.

Because the treatment plant is surrounded by rich lima bean lands, the water which has passed through the primary clarifier and filter beds proves valuable for irrigation purposes. Over 200 acres between the plant and nearby ocean are watered by this effluent.

Solid waste from the plant passes through primary and secondary digesters and into drying beds, to be gathered and sold for fertilizer.



Filters and clarifiers in the Oxnard plant. After treated sewage leaves the plant, the effluent is pure enough to irrigate surrounding farm lands.

Municipal Employment, Payrolls Rise

INDICATION of the importance of municipal employment and payrolls in the national economy is contained in "City Employment in 1947," prepared by the Governments Division of the Bureau of the Census, and published in June 1948 as Vol. 8, No. 8 of *Government Employment*. This report shows that in October 1947, the number of municipal employees, including teachers and other personnel of city-operated schools, was 1,202,000. Total municipal payrolls for the month were $236,300,000.

The number of municipal employees rose 4% between October 1946 and October 1947, while the total amount paid them by the cities rose 15%. In magnitude of employment, municipal governments far outrank not only other types of local government but also state governments. They account for nearly one-third of the total volume of employment and payrolls of state and local governments.

STREAMLINE COPPER PIPE IS THE IDEAL MATERIAL FOR UNDERGROUND SERVICE LINES — No Upkeep and Costly Repairs

A STREAMLINE Copper Service Pipe installation is practically vibration proof, settlement of filled earth, water mains, or buildings have little or no effect upon it. Its quality of ductility permits sufficient stretch to take care of a condition of this kind without injury or failure of the pipe.

STREAMLINE Service Pipe (Type K) is the most uniformly soft and pliable pipe possible to secure—it is kept that way through the use of the best copper obtainable for the purpose and through strict laboratory control through every phase of its manufacture.

Copper does not rust or scale, thus insuring a maximum delivery and eliminating many costly water meter repairs and insuring the accuracy and long life of meter discs and chambers.

When STREAMLINE Copper Pipe is installed as a service line, it can practically be forgotten for years to come. It insures a lifetime, trouble-free piping system that, with the possible exception of abnormal earth or water conditions, need never be replaced.

WITH COPPER AND BRONZE TIME STANDS STILL

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

What's the Matter with County Recreation?

Continued from Page 89)

within a day's journey of 140,000,000 people, and vacations are now becoming a part of the lives of the working people. Even when limited to local use, recreational facilities can be made to cover all costs, as shown by the experience of Cincinnati, Ohio, where receipts on a 200-acre Civic Recreation Center for the ten-year period since its opening in 1938 have totaled in excess of $425,000. This may not be the best way, but it is preferable to having nothing at all.

Recreation Success in San Diego County

Counties rich in natural resources but poor in finances may learn much from the extraordinary story of San Diego County, Calif. In 1930 the population was 207,000. Before that time the county had laid the foundation for the acquisition of a system which today includes three beaches, two mountains, and a desert site, a total of more than 500,000 acres. Yet the total expenditures from local tax funds has been less than $100,000, except on one of the six areas which has been leased by the City of San Diego. Organized community efforts, private donations, plus state and federal legislation and funds have made possible the county's remarkable accomplishments.

The procedure to be followed in creating a notable county system may be as varied as the conditions to be found in the 3,200 different counties. The initiative may be taken by private organizations or by public officials. The cost need be no more than the county pocketbook will permit. But the time is now!

Shall We Place It in the Front Rank?

Everywhere in America there is widespread demand for recreation. This demand has steadily increased during the last 75 years, while the lives of the people have been passing through a period of extraordinary change. It has increased in intensity during a time when there has been little restriction on the exploitation of man's leisure by all sorts of amusement devices including the radio, television, the races, and commercialized sports. Its sharpest rise has occurred during the past five years. Today the demands of the people outrun facilities and leadership in almost every one of the 3,200 counties. There can be no doubt about the necessity for placing the provision for an adequate system of recreation in the front rank of essential public improvements.

"Radiating" Urban Growth Preferred to Satellite Pattern

To the Editor:

I have read with great interest, in the June, 1948 issue of THE AMERICAN CITY, the note entitled, "For Defense and Better Living," which reports on Mr. Tracy B. Augur's comparison of the "usual concentrated urban development" with a proposal for a cluster of satellite cities.

It is strange that Mr. Augur, like most city planners, has failed to notice that during the last half-century the concentrated urban development has ceased to be the usual form of the city, but tends to transform itself into a pattern, which may be described as a "radiating" or as an "octopus" pattern.

If the possibility of a radical reconstruction of our urban centers is to be studied, the "satellite" pattern should be compared with a "radiating" rather than with a "compact" pattern. In the accompanying schematic drawing, such a pattern is presented in terms of Mr. Augur's paradigma, so as to make it strictly comparable with the two other alternatives.

The aim of the proposed cluster of satellites, as first clearly stated by Ebenezer Howard, is to combine the advantages of town and countryside; that is to provide easy access both to open country and to the urban center, as well as to other urban neighborhoods.

As a comparison between the "satellite" and the "radiating" scheme shows at a glance, the distance to open country is the same in both cases, one mile maximum. But, while in the "satellite" scheme 12 neighborhoods are eight miles, and six neighborhoods are four miles distant from the urban center, in the "radiating" scheme, these distances are reduced by two miles for one-half of all neighborhood units. More important still, is the reduction in terms of time and money, because each of three units of 180,000 population can be served by a rapid transit line four miles long, plus two feeder lines of four miles, while the satellite cluster would require six bus lines of eight miles length, plus six feeder lines of two miles length. Communication between neighborhoods as well as provision of utilities would also be far more efficient with the radiating scheme. Probably, the large contiguous open spaces would also be more useful for recreation, agriculture, and for aviation, than the two-mile-wide open strips of the "satellite cluster" scheme.

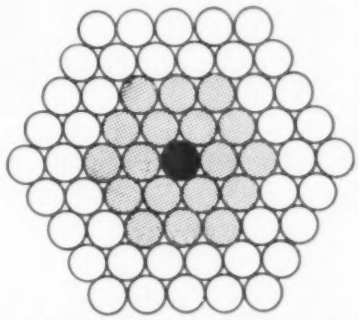
The latter proposal obviously would not provide the optimum of "better living." As for "defense," its value will depend on the radius of the bomb and on the accuracy of the aim. If explosions are random within the total urbanized area, one scheme is no better than another; if the target is accurately hit, but the radius of the explosion is less than a mile, there is also no difference. Only if the aim is accurate and the radius is more than one mile, but less than eight miles, the "satellite cluster" pattern is slightly safer than the "radiating" pattern.

This short analysis does not claim completeness, of course, but may serve to call to the attention of your readers some of the problems involved in the analysis of city patterns.

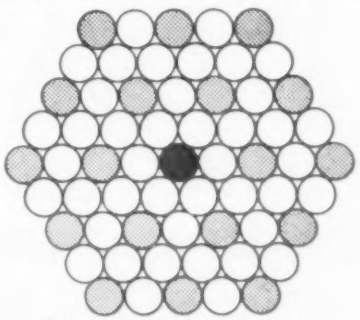
HANS BLUMENFELD
Senior Land Planner
Philadelphia Planning Commission

ED. NOTE: Support for Mr. Blumenfeld's ideas is found in the Swedish quarterly magazine, *Plan*, Issue One, 1948. According to an article by F. Teisen, the new regional sketch plan for Copenhagen, Denmark, rejects the idea of satellite towns in favor of a radial type development along the lines of mass transport (in five directions). New industry is to be grouped along a ring road on the fringe of existing development with dwellings to be grouped in small units of one to two thousand inhabitants. Open spaces are to be formed as wedges between the "fingers."

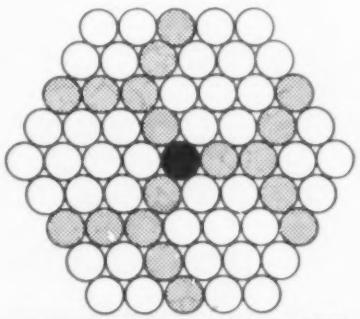
Below are shown the diagrams by Tracy Augur which were reproduced on page 5 of the June issue, together with Mr. Blumenfeld's proposal for a "radiating" or "octopus" pattern. Our readers may differ as to whether they prefer the "satellite cluster" or "radiating" form, but we feel that few will prefer the usual present form of concentrated urban development.



BAD. USUAL CONCENTRATED URBAN DEVELOPMENT.



BETTER. SATELLITE CLUSTER FORM.



BEST? RADIATING PATTERN FOR CITY GROWTH.

34 YEARS Market Street
Savannah, Mo.

29 YEARS East Bridge Street
Oswego, N. Y.

27 YEARS Main Street
Cape Girardeau, Mo.

20 YEARS First Street
Aberdeen, Wash.

Old Streets Resurfaced with CONCRETE

Stand the Test of Time and Traffic

Resurfacing with concrete is a practical way to make durable new pavements of old worn surfaces. This renovation is economical and quickly achieved if the old pavement has a sound base that can be used as a foundation for the new concrete topping.

Concrete resurfacing is also the answer to the problem of strengthening old thin-slab pavements that are no longer adequate for present or anticipated traffic loads. These old, thin slabs often need widening, too. Both jobs can be done simultaneously—at a saving of time, money and inconvenience.

Streets resurfaced with concrete are smooth-riding, strong, durable and economical. Hundreds, like the few shown at the left, have given highly satisfactory service for twenty or thirty years and more. Such streets have all the advantages of new concrete pavements: uniformly high skid resistance, wet or dry; low maintenance cost; greater safety at night due to concrete's light reflectance—highest of all pavement surfaces.

Write today for a free copy of a new illustrated bulletin, "*Concrete Resurfacing for Old Pavements*," which describes many resurfacing projects and contains valuable design data. This booklet is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. 9-4, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Racial Discrimination by Restrictive Covenants—Judicial Support Ended

UNITED STATES SUPREME COURT. *Shelley* v. *Kraemer*, 68 Supreme Court 836 (May 3, 1948), reversing 355 Missouri 814, 198 South Western (2d) 679 (1946).

McGhee v. *Sipes*, 68 Supreme Court 836 (May 3, 1948, in the same opinion), reversing 316 Michigan 614, 25 North Western (2d) 638 (1947).

Hurd v. *Hodge*, 68 Supreme Court 847 (May 3, 1948), reversing 162 Federal (2d) 233 (District of Columbia Court of Appeals, 1947).

When the decisions on these restrictive covenant cases were handed down on May 3, 1948, the editor of this department of Zoning and Planning Notes was on an extended tour of South America.

In Mr. Williams' absence, THE AMERICAN CITY published (in its June issue, page 7), a news item on this highly important action of the United States Supreme Court. On Mr. Williams' return to New York, his first task has been to prepare the more adequate treatment of the subject here published.

In the final disposition of the cases on enforcement of racial restrictive covenants,* the Supreme Court unanimously upset a long and practically unbroken line of precedent and opened up a new epoch in constitutional law generally, in civil-liberties law, and in municipal residential development. While the opinions lack the awareness of the social context and the brilliance of phrase of Mr. Justice Edgerton's classic dissent in the District of Columbia case below, the rather ponderous majesty of Mr. Chief Justice Vinson's opinion dignifies the occasion effectively.

It will be remembered that, in both the state and federal court cases, the arguments centered on six points:

1. *Does judicial enforcement of racial restrictive covenants impose an unreasonable restraint on the alienation of land?*
2. *In view of the discrediting of the concept of "race" by modern anthropology, are such covenants void for vagueness?*
3. *Is judicial enforcement of such covenants contrary to the public policy of the states or of the United States?*
4. *Is judicial enforcement of such covenants forbidden by the Federal Civic Rights Act?*
5. *Does judicial enforcement of such covenants constitute state action and so violate the Fifth or Fourteenth Amendments?*
6. *Is judicial enforcement of such covenants in contravention of the obligations undertaken by the United States in the United Nations Charter?*

In the Supreme Court opinions, attention was properly focussed on the third, fourth, and fifth arguments. The first point was not available there, at least in the state cases; the second and sixth are worthy contentions, but not very likely to be selected as a ground for decision. However, for reasons which are not clearly adequate, the Court handled the state and federal cases quite differently.

Constitutional Question Squarely Faced

In the state cases, the constitutional question was squarely faced, in connection with the guarantee in the Fourteenth Amendment of equal protection of the laws. First, the question was treated as one of first impression in the Supreme Court. Although *Corrigan* v. *Buckley*, 271 U. S. 323 (1926), has often been cited to indicate approval by the Supreme Court for enforcing such racial covenants, the Court interpreted that decision as holding merely that the signing of the contract did not in itself constitute a violation of the Fourteenth Amendment. However, the dictum in that case adding that the constitutional argument against judicial enforcement "likewise is lacking in substance" was ignored.

Second, after noting that exclusion on a racial basis was the sole purpose of these covenants, the Court held that under the equal-protection clauses all legal provisions relating to the acquisition, use, and disposition of property must be free from racial discrimination. In a discussion closely paralleling Mr. Justice Edgerton's, the Court reviewed the cases invalidating racial zoning, and then turned to the real question in the present cases:

> But the present cases, unlike those just discussed, do not involve action by state legislatures or city councils. Here the particular patterns of discrimination and the areas in which the restrictions are to operate, are determined, in the first instance, by the terms of agreements among private individuals. Participation of the State consists in the enforcement of the restrictions so defined. The crucial issue with which we are here confronted is whether this distinction removes these cases from the operation of the prohibitory provisions of the Fourteenth Amendment.

Chief Justice's Opinion Devastatingly Conclusive

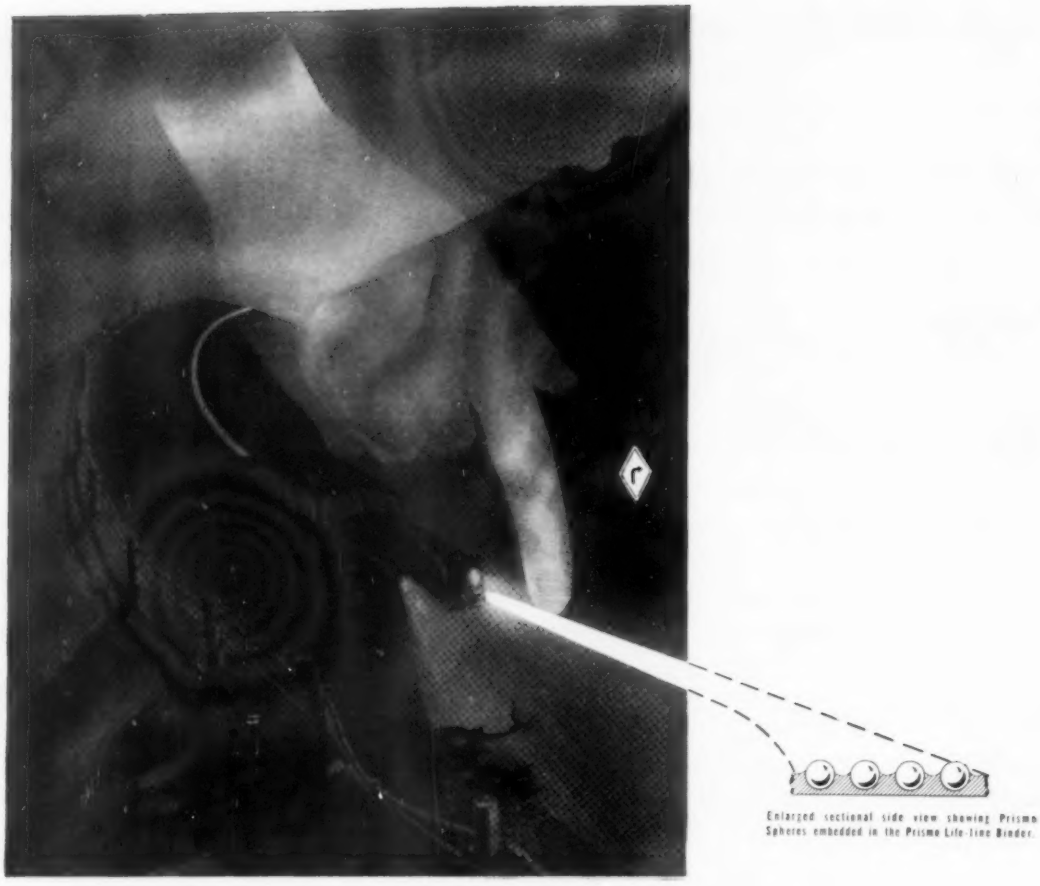
The effectiveness of the Chief Justice's opinion is shown best by the reader's reaction to its crucial section; the carefully reasoned analysis of the State's active role in enforcing contracts is so devastatingly conclusive that on second reading it loses its force as a minor intellectual revolution and seems merely a series of truisms. After reviewing at length the types of judicial action which have been held to violate the Fourteenth Amendment, the opinion gave particular emphasis to the three leading cases where the Amendment has invalidated a substantive rule of State common law. These cases involved an injunction against peaceful picketing, a conviction for breach of the peace arising out of religious propaganda by Jehovah's Witnesses, and the conviction of a newspaper and a labor leader for statements allegedly in contempt of court.† The decision was then stated as follows:

> The short of the matter is that from the time of the adoption of the Fourteenth Amendment until the present, it has been the consistent ruling of this Court that the action of the States to which the Amendment has reference, includes action of state courts and state judicial officials.
>
> . . . . . .
>
> We have no doubt that there has been state action in these cases in the full and complete sense of the phrase. The undisputed facts disclose that petitioners were willing purchasers of properties upon which they desired to establish homes. The owners of the properties were willing sellers; and contracts of sale were accordingly con-

* For the lower Court opinions, see the previous discussions in THE AMERICAN CITY for May 1947, pages 103-104, and for August 1947, pages 125-127.

† *A. F. of L.* v. *Swing* 312 U. S. 321 (1941); *Cantwell* v. *Connecticut*, 310 U. S. 296 (1940); *Bridges* v. *California*, 314 U. S. 252 (1941).

(*Continued on Page* 155)



Enlarged sectional side view showing Prismo Spheres embedded in the Prismo Life-line Binder.

THE PRISMO LIFE LINE . . .
the *GUIDE* of a LIFETIME!

A finger of light points the way to safety! Created by your headlights reflecting on the Prismo Life Line, a gleaming ribbon of light appears.

At once the twisted road is marked for you. Every secret curve exposed. Every hidden danger brilliantly revealed. *It's Prismo guiding you to safety!*

All over America the Prismo Life Line is making roads safer for motoring millions. Test after test shows Prismo first in reflectivity at the widest angle of sight.

All this, plus its longer lasting qualities and its speedy application makes the Prismo Life Line your budget's best buy.

Reflect now . . . *but be sure it's Prismo!*

THE PRISMO SAFETY CORPORATION

HUNTINGDON, PA.

Traffic Control and Facilitation

Weighing the Traffic and Dishing Out the Time With Traffic-Actuated Signals

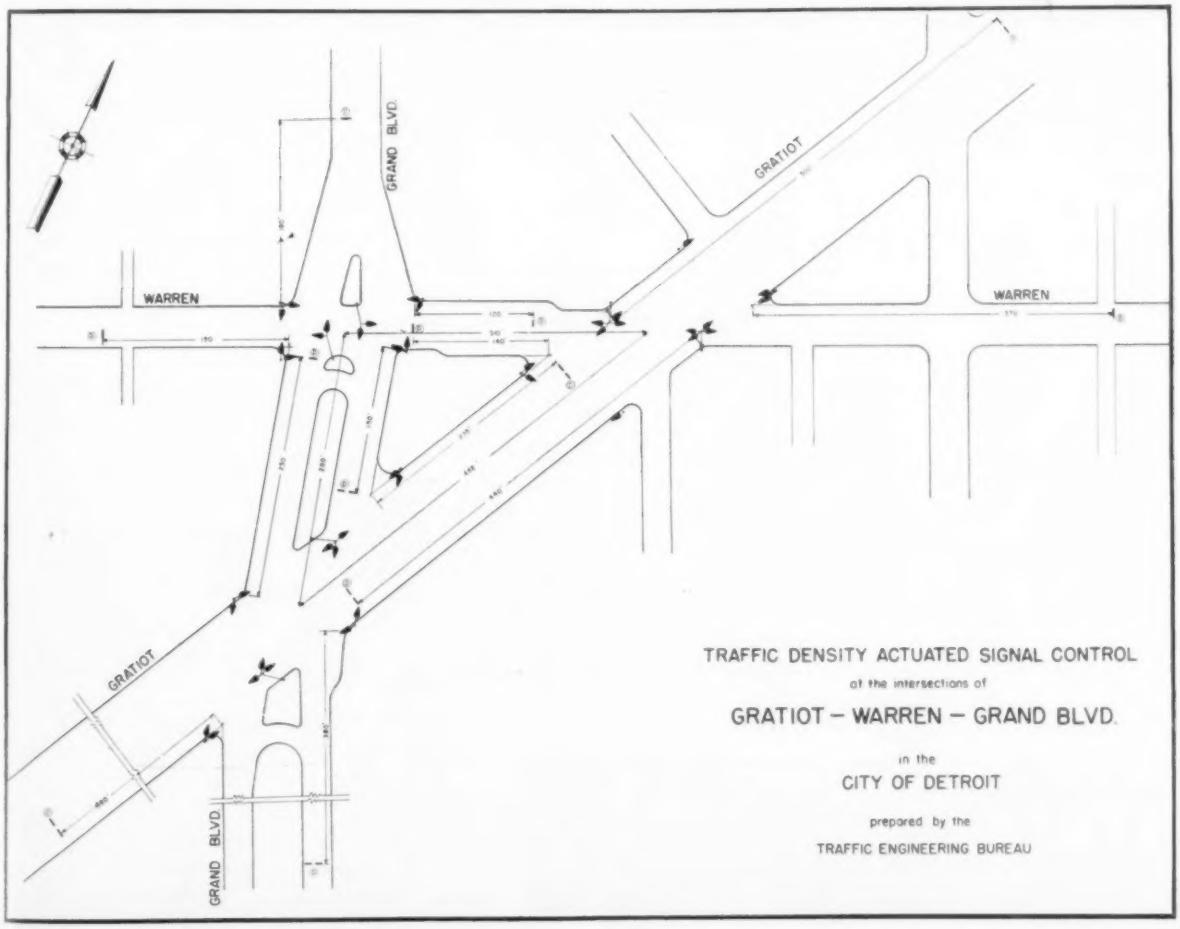
By ROSS C. HARGER
Engineer, Traffic Engineering Bureau
Detroit 26, Michigan

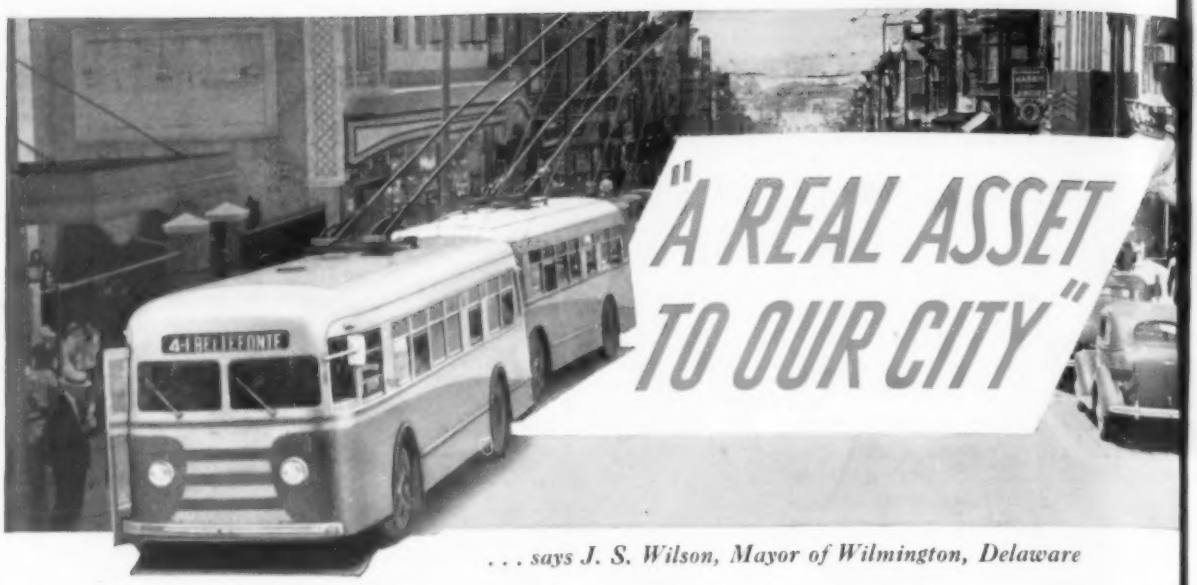
TRAFFIC-actuated signals — which only a few years ago were commonly thought to apply only on highways and isolated suburban intersections — are operating satisfactorily at Detroit's Triangle, which is entered by 95,000 cars daily. The Triangle is formed by the intersections of Gratiot, Warren, and East Grand Boulevard. Where formerly the average number of stops per car was 1.6, with traffic-actuated signals the average is one stop. Delays have been reduced 42%.

Traffic-actuated signals are operating also at Dix and Central Avenues, Conner and Shoemaker, 14th and Lafayette, 12th and Lafayette, and Gratiot and Van Dyke.

Our experience with these signals extends from 1940. They are ideal for handling intersections where it is impossible to get progression, which is the case at the Triangle. It could not be timed; one street had to be completely out of step. After great difficulties in obtaining equipment and service during the war in October 1947, the controllers and detector system were reconstructed through the installation of three new controllers of latest design, and new magnetic detectors were better located at 300 feet back of the intersections.

Before proceeding with the operating procedure of traffic-actuated signals, a few words from our book of experience may be in order. When streets are icy, cars are slower in getting underway — and no calls come from these in the rear. The controller then settles down to minimum-time condition. The minimum is 15-20 seconds unless there is a pedestrian problem, when it may be 25 seconds. It was to improve this situation that we





. . . says J. S. Wilson, Mayor of Wilmington, Delaware

TROLLEY COACHES are carving big chunks out of Wilmington's traffic jams, boosting business and realty values. No wonder they're a hit with riders, merchants, and taxpayers

"the people's choice"

says His Honor . . .

"We've never regretted our decision to convert our transportation system to trolley coaches. They're quiet, safe, comfortable, well lighted, well ventilated, and capable of excellent operation on hills—the favorite vehicle with our 140,000 transit riders!"

"they keep traffic moving"

says City Engineer E. F. Koester . . .

"We noticed a great improvement in the easing of traffic congestion soon after the trolley coaches were installed. They load at the curb, are big, speedy, and maneuverable. In fact, they set the pace for all traffic."

"a boon to real estate and business"

says C. of C. Executive Manager G. Gassaway . . .

"One of our heaviest building construction areas is along the Newport Pike. We feel that the excellent trolley-coach service there has improved real estate values greatly. And as for helping downtown business, here's how our merchants look at it. If the 19,000 shoppers who come into the central area daily by trolley coach had to depend on automobiles, the whole central area would be tied up and business would fall."

GENERAL ELECTRIC 107-222

For results like these, discuss with your transit company the possibility of making electric transit vehicles the backbone of your city's transportation system. Your G-E transportation engineer will gladly help you decide where they can be economically best applied. Apparatus Dept., General Electric, Schenectady 5, N. Y.

moved the detectors back 300 feet from the intersection. For this, an even greater distance for registering may be desirable. When traffic backs up and continues to accumulate, the "minimum time" is the only means for straightening out the situation, and ½ to ¾ hours may be required for this operation.

With the familiar stop-and-go fixed-time signals, the green comes on every so many seconds and then the red for a given period, irrespective of the number of cars waiting. This system, as is well known, operates with a high degree of satisfaction at most intersections. It is our belief, however, that the traffic-actuated system, which takes into account the volume of traffic, will come in for increasing municipal study, consideration, and installation. With it, the length of the green period on each street varies according to the volume of calls, the amount of traffic approaching on the street having the green light, and the density and closeness of the vehicles.

These vehicles are weighed against the number of cars which have come up on the other street and have put in their calls, and also against how long they have waited. The two-vehicle density accumulations are balanced against each other, and the green light is taken away from the lesser.

As the pressure becomes greater on the cross street with the red, the rapidity of the calls on the green street must be increased in order for the latter to hold the green. Lacking this mounting rapidity of calls, the green is given to the cross street. A further degree of "judgment" is furnished by the fact that the controller permits the heavily traveled street to keep the green for only a definite maximum time if there is any traffic at all on the other street. There is also a minimum time that a sparsely traveled street can hold the green. The green light is taken away from either street for the following reasons:

The rapidity of calls decreased.

The number of cars on the other street has built up to a certain point.

The time waited has reached a certain point.

The time allowed the street has been used.

Courtesy Pays

THE Kerville (Texas) Real Estate Board has City Policeman H. G. Thompson place courtesy cards on the windshield of overparked out-of-town cars, meanwhile inserting 5 cents in the parking meters. The card reads:

"Through the courtesy of the Kerville Real Estate Board and Kerville Police Department, you have been saved a one dollar fine. Your parking meter showed violation. This being your first offense the above board furnished the nickel and our Police Department deposited the coin. If you would like to return this card and the nickel to be used again, just leave or mail them to the Chamber of Commerce or any board member."

The Police Department estimates about one out of ten returns the card, usually with a card of thanks, and letters come from all over the nation.

One letter declared the writer bought $72 worth of merchandise he had not planned on buying simply because he was not fined.

The parking meter receipts from the 398 Karparks are running around $1,500 per month, declared City Clerk E. W. Marlowe.

Parking Meters Make News

Parking Meters Stir Texas Feud

City Puts Them In, County Rips Them Out

Gilmer, Tex., Sept. 5—(AP)—That Ohio outfit better come get their parking meters—that's what all the feuding is about in this east Texas town.

The city put 'em up and the county took 'em down.

On May 1, the city had meters installed in Gilmer. Ninety went up around the courthouse square.

The commissioners bridled.

"This courthouse square," said they, "is county property. The city can't come on county property putting up parking meters."

On Labor Day road gangs, under orders from the commissioners, tore out the meters with sledge-hammers and filled the holes with concrete.

Mayor Horace V. Davis, claiming the county officials never had made any official protest about the meters, announced yesterday:

"Someone is going to pay for the meters that have been battered around and perhaps hopelessly damaged."

The Karpark Corp., of Cincinnati, installed the meters on a one-year trial basis, he said. The corporation still owns the meters—it was to receive 75 per cent of the revenue until the purchase price was met.

And today the city had only one announcement.

"The next move is up to the Karpark Corporation."

One-Worlders Get Too International

By the United Press.

WASHINGTON, Sept. 23.—Criticized for installing auto parking meters at the Washington National Airport, Administrator Bennett Griffin explained today:

"We had no choice. People used to come over here and park their cars for three or four days while they went off to Europe."

Parking Meter Stops Her Dash for News

MOUNT VERNON, Wash., Dec. 19 (AP).—A parking meter kept a Mount Vernon woman driver from breaking into the news.

Her car went out of control on a hill, snapped off the parking meter and stopped just two feet from a plate glass window next to the news desk of the Mount Vernon Daily Herald.

Parking Meter Row

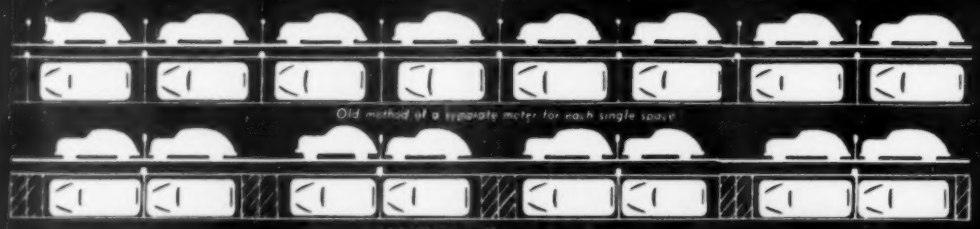
Special to the World-Telegram.

YONKERS, Sept. 12.—The Common Council here is debating a suggestion that the 1200 parking meters in use be thrown away and another type of meter substituted. Two manufacturing concerns are said to be bidding for the job of installing new meters.

Eliminate Crowded Parking In your City with . . .

ALFCO TWIN

AUTOMATIC PARKING METERS



Old method of a separate meter for each single space

New way of ONE Alfco Twin Meter for every TWO parking spaces

The Alfco Twin Automatic Parking Meter solves many modern parking problems! It parks two cars instead of one at a much lower original cost to the city than single meters, and without reducing the number of parking spaces.

In addition to this initial savings, the Alfco Twin Meter may be maintained and serviced at but a fraction of the cost of the maintenance of out-moded single meters.

Also the Alfco Twin eliminates crowded parking, lessens the possibilities of mishaps, helps to safely speed up arriving and departing motorists, helps eliminate traffic blocks by providing more space for easy entry and exit. (See diagram above).

The Alfco Twin is available in six different models for varying parking time limits and rates. It is ideal for parking lots as well as for parallel or angular street parking.

Orders are now being accepted for prompt delivery.

INTERNATIONAL METERS, INC.

Executive Offices: 100 East LaFrance Street, Elmira, New York
General Sales Office: 41 E. 42nd Street, New York 17, N.Y.

SUBSIDIARY OF . . .
AMERICAN-LAFRANCE-FOAMITE Corporation
ELMIRA NEW YORK U.S.A.

ALFCO

Commercial Parking In Residential Areas

ZONING requirements that new commercial developments provide off-street parking in connection with the building are proving to be both practical and reasonable for new shopping centers located in partially built-up outlying areas where land values are relatively low and open areas available. The reasonableness or practicability of this method for the built-up central districts or sub-centers is quite another matter, however.

Between these two extremes there is another type of business area which must be considered. There are many areas at the periphery of business districts and adjoining zoning districts of a higher classification where commercially zoned land has been largely developed without parking facilities. Putting this land to a productive use such as off-street parking, under adequate safeguards, would provide a transitional buffer area between the business district and adjacent residential development, exert a stabilizing influence on both the business district and adjacent uses, and discourage the zoning of an excessive amount of commercial land which might later be used for purposes other than parking.

These are some of the findings of a recent survey of the Urban Land Institute, based on replies from the city planning commissions of 107 cities with a population of 50,000 or more.

Of these 107 cities, 49 now have some form of regulation which permits land in residential districts to be used for off-street parking in connection with the adjacent business district. Nineteen additional cities are actively contemplating such a provision. Forty-five cities handle the provision under zoning, 38 as a special-exception or special-use permit, which is handled in 25 cases by the Zoning Board of Appeals or Adjustment. In 13 cities action by the city council is required; in three the permit is issued by the planning commission; in two by the zoning administrator; and in two by the board of public works.

Copies of the report (Technical Bulletin No. 9, published June 1948) may be obtained for $1.50 each from the Urban Land Institute, 1737 K Street, NW., Washington 6, D. C.

Chicago Ups Transit Fares

FOR the second time in little more than a month, Chicago Transit Authority increased local transit fares, in order to meet its operating costs entirely out of revenues.

The Authority is required by law to maintain an income that will pay all of its operating expenses, plus the cost of new equipment and other required improvements. There is nothing discretionary about this provision of the law. It is mandatory. The first fare increase was on May 11, the second on June 20. These were the reasons:

(1) The national economic trend has dictated a wage settlement with transportation employes which provides for an increase of 11 cents per hour, retroactive to June 1, 1948, and two cents per hour additional, December 1, 1948.

(2) This national upward trend in wage costs has resulted in steadily rising prices of all materials and supplies, which Chicago Transit Authority must buy, and has increased the cost of new equipment and other improvements essential to better local transit service.

The local wage increase alone will cost the Chicago Transit Authority approximately $8,500,000 a year. In amount per hour, however, the wage increase is in line with wage increases recently granted elsewhere in the nation. Because of similar increases elsewhere, materials and supplies are conservatively estimated as increasing in price at the rate of $1,200,000 a year through the remainder of 1948, and probably on through 1949.

Cities Use More Trolley Coaches

CITIES are using increasing numbers of trolley coaches to help meet critical transit needs, the American Public Works Association reports. The number of trolley coaches operating in U. S. cities has increased from 3,368 to 4,298 in the past year alone—a 27% rise. Currently, 41 privately or publicly owned transit companies operate trolley coaches in 81 cities.

In the larger cities the popular formula is to serve heaviest public transportation needs with streamlined street cars, medium traffic routes with trolley coaches, and to equip feeder lines with motor coaches. Each vehicle has unique advantages. Recent technical improvement in trolley coaches is the "overhead by-pass" trolley line which permits express trolleys to pass locals on the same route. Atlanta, Akron and Columbus are among cities where the by-pass lines are in use.

New School for Traffic Judges

TRAFFIC court judges and prosecutors from all sections of the midwest will attend a five-day traffic-law-enforcement and court-administration conference at Northwestern University's School of Law October 21, 22, 25, 26 and 27. The conference will be conducted by the American Bar Association and the University's Traffic Institute with funds provided by the Kemper Foundation for Traffic Safety in Chicago.

"Conferences of this type are effective in providing judges and prosecutors with the special knowledge and skill so necessary in dealing with the traffic-violator problem," according to Franklin M. Kreml, director of the Traffic Institute.

Attendance at the conference is open to all judges in courts which try traffic cases, to prosecutors assigned to such courts and to persons about to assume such positions. The registration fee for the session is $25.

Small Street Signs Are Traffic Hazard

Obscure Signs Add to City's Auto Hazards
Survey Finds Many Dangers Despite Citizens' Complaints
Little Things Add Up to Big Traffic Snarls
Small Imperfections Harry City Drivers, Fill Accident Wards
Little Signs Drive Drivers Crazy
Obscure Signs Add to City's
Street Sign Hard To Figure Out

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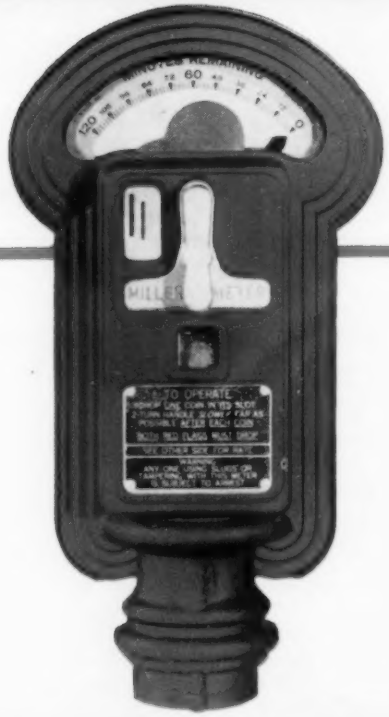

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Lansing Completes a Million-Dollar Street-Lighting Program

By OTTO E. ECKERT
General Manager
Board of Water and Electric Light Commissioners

CONSTRUCTION work planned for the summer of 1948 will bring about the completion, in Lansing, Michigan, of a street light modernization program which had its beginning in 1923. By the end of the year, all the hard surfaced streets in the city, amounting to 171 miles, or 88%, of the total street mileage, will be equipped with ornamental type boulevard light standards. This involves a total of 6,297 standards, of which 95% are of a uniform modern style, and a capital expenditure of $977,000.

When the modernization program was conceived, municipal authorities, in consultation with General Electric Company, gave serious consideration to the many factors entering into the long range program. As is true in a great many cities, street tree plantings had been made in past years without sufficient thought as to the ultimate size or shape of the trees, or the relationship of such trees to any future street improvements. As a result, trees were crowded and, particularly in the older parts of the city, became a major factor in selecting the type of street lighting to be adopted.

Map showing Lansing streets lighted with boulevard-type standards.

In order to preserve the beauty of the tree plantings, provide an adequate level of illumination for normal purposes and, at the same time, provide a system pleasing in appearance over a period of years, the boulevard type lighting system was selected. The "King Company French Design" standard was chosen. These standards are used in several heights dependent upon the class of street being lighted.

Principal business streets, where a relatively high light intensity is desirable, are equipped with standards having a 20-foot light center height and fitted with two General Electric Co. Novalux Form 12 units carrying #124 Light Alabaster Rippled Globes, #1124 Light Alabaster Rippled Canopies and 10,000-lumen 20-amp series Mazda lamps. These standards are spaced 100 to 135 feet apart and opposite.

15-Foot Standards Duck Foliage

Secondary business streets and main traffic arteries are equipped with 15-foot standards trimmed the same as the 20-foot standards except that a single Novalux unit is used. Also, in some instances, it has been found possible to use a 6,000-lumen lamp. These standards are spaced 100 to 150 feet apart in both staggered and opposite arrangements.

Residential streets, where tree plantings become a major factor, require a lower standard. Where pavement widths are 40 feet or less, an 11½-foot standard is used and fitted with a single Form 8 Novalux Unit and a 2500-lumen lamp. For pavements of over 40 feet, a 13-foot standard is used with a 4,000-lumen lamp. Both of these standards are trimmed with glassware similar to that used on the larger standards and are spaced 100 to 150 feet apart and staggered.

Distribution circuit loops feeding the boulevard standards are all underground. About 85% of the lights are fed from circuits originating in generating stations or one of the several substations and only about 15% are from pole type regulators. All series primary circuits carry a 6.6-ampere line current but two systems are used for secondary feeds to the individual standards. The 15- and 20-foot standards employ a G.E. Co. IL transformer installed in the base of each pole to raise the current to 20 amperes. The 11½- and 13-foot standards employ a G.E. Co. Type SL transformer feeding a secondary loop carrying 12 to 18 lamps. This permits the use of more efficient high current lamps, protects the lamps from line surges and effectively insulates the standard from the

Principal business street with 20-foot twin 10,000-lumen boulevard standards.

there are at least

39

IMPORTANT

FEATURES

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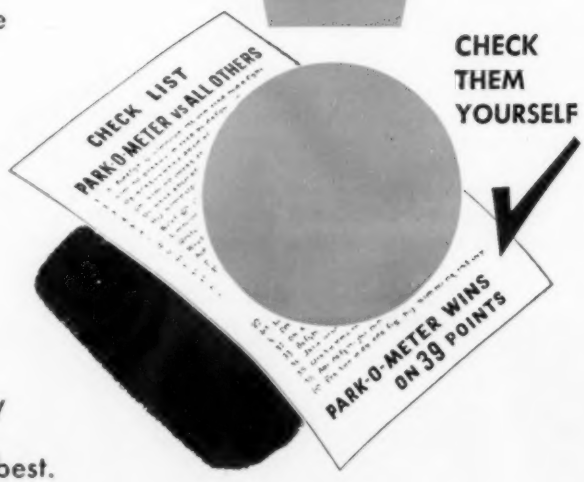
has them all!

WHAT MAKES A METER OUTSTANDING ?

what is *really* good in a Good Parking Meter?

Sincere city officials all over the nation . . . men who are honestly trying to serve their public . . . enthusiastically praise Park-O-Meter's new, simple yet complete check list that enables them to determine, POINT BY POINT, the desirable features of ALL MAKES of parking meters. Once they have it down in black and white they KNOW which meter will serve their purpose best.



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high voltage circuit. All street light circuits are controlled from generating or substations by the station operators. Where circuits are fed from pole type regulators, they are cascaded on circuits which are substation controlled.

40 Miles of Trees Trimmed Each Year

Contributing to the effectiveness of the Lansing street lighting system is the full cooperation of the City Forestry Department. A tree trimming program has been adopted which involves trimming 35 to 40 miles of street each year. Trees are trimmed as high as possible without damage to the tree and trees are gradually being removed to improve the spacing and tree variety. Lansing has approximately 35,000 street trees, of which 65% are about evenly divided between American Elm, Norway Maple and Sugar Maple, while another 13% are Soft Maple. The remaining 22% are spread between fifty-three other varieties. Recent plantings have been principally of the Norway, Sugar or Schwedler Maple variety. Particular attention is given to training and shaping of young trees for minimum interference with street lights.

Routine maintenance of street lights is accomplished by a two man crew operating from a specially designed truck. The truck body, on a 1½-ton Reo chassis, provides cupboard space along the sides of the truck for forty sets of glass globes and a stock of lamps. Attached to the truck bed between the cupboards is a 30½-foot turntable mounted American aerial extension ladder. A horizontal platform on the end of the ladder provides a work platform and makes it possible to service the light standards, regardless of parked automobiles. This equipment is also used to service overhead street lights on unpaved streets, and overhead traffic signals. Special maintenance required by reported lamp outages or broken glassware is provided by one man using a light service truck with portable ladders.

Lamps Replaced After 2,000 Hours' Use

Replacement of lamps is made on the basis of lamp hours burned and lamps are replaced in groups after 2,000 hours of use. The dirty globe and canopy are replaced with clean ones at the same time the lamp is changed. All dirty glassware is returned to the shop for washing.

Patrolling of street light circuits for the detection of inoperative circuits or burned-out lamps was discontinued during the war and has not been resumed. Dependence for such information is now placed upon reports by the Police Department Scout cars and by residents in the area. These reports have been found to be quite satisfactory. The station-regulated circuits are all provided with means for testing and are tested for faults twice a day, once just after the circuits are turned off and again in the afternoon before repair crews finish for the day.

Heavy-traffic residential street has 13-foot, 4,000-lumen boulevard standards.

Secondary business street with 15-foot, 10,000-lumen boulevard standards.

Future planning contemplates the early replacement of the few remaining obsolete type standards with the King type and the extension of the boulevard system to include all newly paved streets as rapidly as they are surfaced.

Planning Lighting in Sewickley, Pa.

A SURVEY by the Duquesne Light Company furnished information on existing street lighting conditions in Sewickley, Pa. and recommended the changes necessary to bring it up to I.E.S. code standards. Streets carrying the heaviest traffic are in greatest need of good lighting and will receive attention first. The program will be taken in steps and the cost will be absorbed over a period of years.

Incidentally, the total increased cost of the new street lighting on Beaver Street, Broad Street, and for 25 intersections in the Borough is only 22 cents per person per year. In addition to supplying electricity, the Duquesne Light Company furnishes the equipment and assumes the responsibility for maintaining the street lighting system. The duty of maintenance includes relamping and periodic cleaning of the luminaires.

A prime factor which influenced the Council on the question of improving the street lighting was the need for additional traffic safety at night. The former street lighting system was not designed for modern traffic conditions involving greater volume and higher speeds. Furthermore, modern street lights are more efficient and direct a greater amount of light to the road surface. Visibility is materially improved and it is easier for motorists to see objects or pedestrians.

THE MUNCIE STAR
MUNCIE, INDIANA, SUNDAY, JULY 18, 1948
TEN CENTS
MUNCIE STREETS NOW "BRIGHT AS DAY"
New Street Lighting System ups Night Visibility more than 50%
The Day in
High Allied Quarters in
He's Goodest "Good Egg"
Draft Setup Again Ruled by Hershey
Long Separation Is Ended
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Midwest metropolis makes *Lighting* news!

Modern Street Lighting provides far greater After Dark Safety for residents of Muncie, Indiana, with more than 3½ times as much illumination per Lighting Dollar Spent!

Muncie's business district before new street lighting was installed.

A NEW, modern Street Lighting System now safeguards night traffic in Muncie, Indiana.

For this progressive midwest metropolis has just completed more than 30 miles of modern street lighting in residential areas and business districts, representing one of the finest installations of its kind in the country.

1600 highly effective luminaires containing 6,000 and 10,000 lumen lamps mounted on 6-foot Brackets attached to all-steel standards 25 feet high, with an average spacing of 100 feet, provide illumination varying from 1.10 to 1.48 foot-candles throughout the city.

The project represents a planned Street Lighting Program to keep Muncie in the forefront as an alert American city . . . safe, energetic and growing.

An efficient utility, the Indiana and Michigan Electric Company, working in unison with city officials, effected this outstanding municipal achievement.

FOR MORE FACTS . . .

Write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

With the old lighting, earth and sky seem to meet in a blackness that is only a little less on the pavement.

Good Main Street Lighting Wins Citizens of Ashtabula, Ohio

By R. M. HOISINGTON
City Manager
Ashtabula, Ohio

OUR city's street lighting program consists of gradually installing I.E.S. Standard lighting on the more heavily traveled streets. The application of these standards, and the actual erection of the lights is done by the Cleveland Electric Illuminating Co., which, by contract, provides all fixtures and power, charging an annual rate for each light according to the size.

Starting last year, we have thus far actually installed this new lighting only on Main Street and on two other streets which were not lighted formerly. New lights have been ordered for a number of other streets. The company has been requested to study and submit recommendations on still a third set of streets.

The old business street lighting consisted of sixteen 10,000-, five 6,000-, eighteen 2,500- and two 1,000-lumen street lights mounted at an average of 20 feet high on wood and steel standards.

These were replaced by twenty-nine 10,000-lumen lights and thirty 6,000-lumen lights mounted 25 feet high on wood and steel standards. The total cost was $4,400.

Modern street lighting saves lives by reducing night-time traffic fatalities. It cuts crime by discouraging holdups and thievery. It lends inspiration to the whole community by increasing civic pride, and boosts sales in business places through increased night buying and window shopping. It assists the fire department. It increases property value. Someone has said, "Good street lighting is the sign of a good place to live."

At first there was some local opposition to the expenditure of additional funds for this purpose. However, since the lights were installed on Main Street, this opposition has been replaced by a popular demand for further and more rapid extension of the improved lighting.

With the new lighting system, the pavement springs into an individuality that makes both driving and walking safer and pleasanter. Notice the Magee-Hale Park-O-Meters on both sides of this wide street.

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Vancouver, B. C., one of the largest Dual installations in Canada.

DUAL Automatic Parking Meters win new friends wherever they are installed. That's because Dual's *plus values* simplify traffic control—because Duals are engineered to operate practically maintenance-free.

Here are typical comments, from City Engineers in Vancouver, B. C. "The Dual Automatic Meter is of good construction . . . has good accessibility . . . ease of operation . . . is good from the standpoint of unintentional or intentional misuse".

Duals are successful because they are rugged, precision-built instruments. The mechanism is a completely packaged unit. And Duals are *weather-proof* and *tamper-proof*—operate *automatically,* no levers to cause servicing problems.

If your community is considering installing parking meters, be *sure* to get all the facts about Dual Automatics. You'll see why they're favorites in cities and towns from coast to coast —in Canada and the U. S. Write today for free, informative Bulletin DU-501. Ask our engineers for helpful survey service.

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The ORIGINAL Parking Meter

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. . . YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Racial Discrimination by Restrictive Covenants—Judicial Support Ended

(*Continued from Page* 141)

summated. It is clear that but for the active intervention of the state courts, supported by the full panoply of state power, petitioners would have been free to occupy the property in question without restraint. . . . these are cases in which the States have made available to such individuals (signatories to the covenants) the full coercive power of government to deny to petitioners, on the grounds of race or color, the enjoyment of property rights in premises which petitioners are willing and financially able to acquire and which the grantors are willing to sell. . . .

. . . The judicial action in each case bears the clear and unmistakable imprimatur of the State. . . . Nor is the Amendment ineffective simply because the particular pattern of discrimination, which the State has enforced, was defined initially by the terms of a private agreement. State action, as that phrase is understood for the purposes of the Fourteenth Amendment, refers to exertions of state power in all forms. . . .

We hold that in granting judicial enforcement of the restrictive agreements in these cases, the States have denied petitioners the equal protection of the laws and that, therefore, the action of the state courts cannot stand. . . . Because of the race or color of these petitioners they have been denied rights of ownership or occupancy enjoyed as a matter of course by other citizens of different race or color.

Arguments Disposed Of

Two constitutional arguments offered in rebuttal were disposed of with appropriate speed. The contention that no inequality is involved, since the state courts would readily enforce covenants directed against white persons, was not treated very seriously, and the rights under the Fourteenth Amendment were held to be personal to each individual:

Equal protection of the laws is not achieved through indiscriminate imposition of inequalities.

One cannot help recalling Mr. Justice Edgerton's flash in response to this point:

This amounts to saying that if Negroes are excluded from decent housing they may retaliate by excluding whites from slums.

Moreover, the fantastic suggestion (actually accepted by both state courts below) that a refusal to enforce these covenants would deny to their signatories equal access to the Courts, and so equal protection, was given even shorter shrift:

The Constitution confers upon no individual the right to demand action by the State which results in the denial of equal protection of the laws to other individuals.

Protection for Basic Rights

In the District of Columbia case, the Supreme Court elected to avoid the constitutional question (under the Fifth Amendment) and rested the decision against enforcement on the Civil Rights Act of 1866. Once judicial enforcement of contracts is admitted to constitute State action, the relevant section of that long-dormant but recently rediscovered Act certainly covers the present cases squarely:

All citizens of the United States shall have the same right, in every State and Territory, as is enjoyed by white citizens thereof to inherit, purchase, lease, sell, hold and convey real and personal property.

The Court also held that, since the Constitution forbids enforcement of such contracts by state courts, the same protection for such basic rights must be provided by the public policy of the United States. Incidentally, a passing reference is made to treaties (such as the United Nations Charter) in connection with the sources of that public policy. In a concurring opinion Mr. Justice Frankfurter made a similar argument, that the equitable remedy of an injunction is not available to accomplish a purpose which the states are constitutionally prohibited from accomplishing.

In view of the issues settled in these opinions, their shortcomings are relatively unimportant. The thoroughly legalistic approach and the emphasis on property rights give the opinions an unusual flavor among recent civil-liberties decisions, yet in a way make the result more impressive. The attempt to distinguish *Corrigan* v. *Buckley*, an understandable bit of judicial comity, has some technical validity but does not quite come off; as a result that decision remains on the books, with no practical importance. A more serious point is the avoidance of the constitutional issue in the federal case. Admittedly the Civil Rights Act squarely covers the present case, and is probably not going to be repealed; yet a decision based on statutory construction is necessarily a less definitive solution. In the present instance non-citizens are not accorded any formal protection, and complications will probably arise if the wording of the statute is ever changed or strengthened.

A Revolution in Judicial Thinking

Affirmatively, in the first place these decisions mark a revolution in judicial thinking about the function of law. When the philosophy of laissez-faire and freedom of contract was all-pervasive, judicial enforcement of contract rights seemed so automatic—almost like a natural right—that court decrees were looked upon as something quite different from legislative or executive action. Now the increase in governmental functions has brought about a different attitude and a more realistic appraisal of the types of governmental activity, and it is natural to look upon judicial decrees as merely an alternative form of state action.

Second, the breach opened here will eventually break down racial segregation in American community development. While the resort to extra-legal pressures may even temporarily increase, at least the machinery of American democracy is no longer available to enforce residential ghettoes. Moreover, the broader perspective has suddenly become compelling. Discussion about the effect of racial discrimination on our world prestige once seemed suspiciously like a worthy rhetorical flourish or legal fiction; but, after a recent trip around Latin America, it is perfectly clear to me that in huge areas of the present world the United States is judged very heavily on the issue of racial discrimination. After the present decisions, then, both our municipal development and our world position are no longer at the mercy of private covenants.

Remodelling Non-Conforming Apartment—Zoning

ILLINOIS APPEALS. *People* ex rel. *Delgado v. Morris*, 79 North Eastern (2d) 839 (Illinois Appellate Court, June 4th, 1948).

Sometime before 1917 a single-family residence in the Chicago suburb of Highland Park was enlarged by the addition of an annex, and the building was divided up into several dwelling units, each occupied by a separate family. Apparently each unit had a separate sink, stove and ice-box, but some bathrooms were shared. A 1926 amendment to the relevant zoning ordinance restricted the area to one-family houses, with a provision for non-conforming buildings. For several years during the depression the building was not occupied, apparently because of difficulty in obtaining tenants. A prospective purchaser sought to remodel the building (now highly depreciated) for five apartments, with the addition of several porches, but permission was refused by the Building Inspector.

In the opinion on appeal, the evidence was held to establish a non-conforming use as an apartment, and the number of baths was treated as irrelevant; and there was no evidence that the non-conforming use had been intentionally abandoned during the depression. Moreover, no prohibition was found in the Highland Park zoning ordinance against expansion of a non-conforming use, either by increased volume or increased intensity of use. However, the plans for the proposed addition did violate the building code, and so the application was held to have been properly denied.

ARE THE RESIDENTS OF YOUR CITY LOST IN THEIR OWN HOME TOWN?

Lifelong residents can explore like Columbus — don't know where they are going, where they are located and can't tell where they've been — in cities where street name markers are inadequate, dingy, weatherbeaten or indistinct, or poorly located for easy visibility.

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STREET NAME SIGNS

Make it easy for residents to know the names of their streets and to find their way about in your city with Grote signs that are the mark of the up-to-date community — the essential utility to speed up deliveries and make streets safer.

The installation of Grote street name signs is an economy investment that instills a pride in the community — confidence in the intent and accomplishments of the administration. They are sturdy, highly readable signs, noted for the ease of their installation and many years of weathering service in any climatic condition. Send for the Grote manual of street signs for your community.

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THE GROTE REFLECTORIZED HIGHWAY SIGN IS THE BRIGHTEST SPOT ON THE ROAD

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Admission Taxes—Theatres—Tax on Patrons Not Unreasonable Demand on Operator to Collect

In an attack on admission tax imposed by Knox County and City of Knoxville on all admissions to places of amusement which requires operator to collect tax, keep records, and pay over tax to municipality, held that such tax was valid under the state constitution and was not a tax on the privilege of the operator to do business, but upon the person paying for admission, and the collection of by the operator was a voluntary act for monetary gain. *Knoxtenn Theatres, Inc.* v. *Dance*, 208 S. W. (2d) 536 (Tenn., Jan. 16, 1948) *Reh. den.* Feb. 28, 1948.

Beer—Storage and Possession of Prohibited—Validity of Ordinance

In action to enjoin passage of ordinance forbidding storage and possession of beer in certain locations, held that such ordinance was valid as right to do so is not property right but only permit to do something otherwise unlawful. *McHugh* v. *Mayor and Aldermen of Morristown*, 208 S.W. (2d) 1021 (Tenn., Feb. 28, 1948).

City Employees—Validity of Home-Rule-Charter Provision Fixing Wages At Same Rates Paid by Private Industry

In mandamus to compel wage payments to city employees of City of San Francisco, held that city's home-rule-charter provisions that wages would be comparable to those paid in private employment for similar service was valid as charter was organic law of the city, and while an ordinance containing a similar provision may be invalid as unlawful delegation of power, a charter provision is not. *Adam* v. *Wolff*, 190 Pac. (2d) 665 (Cal. App., Mar. 19, 1948).

City Limits—Contraction of by Agreement with Private Corporation

Where city contracted corporate limits to exclude cold storage and packing plant from taxation in consideration of promise to enlarge such plant and build dairy products plant within city limits and pay stated sum to town, held that ordinance was void as an attempt to barter away municipality's taxing powers and circumvent constitutional procedure. *Edwards* v. *Town of Ponchatoula*, 34 So. (2d) 394 (La., Jan. 12, 1948).

Curb Cutting—Ordinance Regulating Upheld

In action to review denial of plaintiff's application for permission to construct approaches, by curb cuts, to property intended for use as gasoline filling station, held that ordinance regulating curb cutting was not unconstitutional by vesting arbitrary discretion in commissioner of public works or for merely giving city board of aldermen right to affirm or reverse, and not amend, commissioner's actions. *Newman* v. *Mayor of City of Newport*, 57 Atl. (2d) 173 (R. I., Jan. 21, 1948).

Dogs—Vivisection of—Necessity of Proof of Ownership Before Injunctive Relief Given

In action to enjoin city from enforcing ordinance authorizing delivery to reputable institutions of unclaimed, impounded dogs for vivisection for increase of knowledge relating to disease, held that injunction would not lie in absence of allegation that plaintiff was owner of dog so used. *Harz* v. *City of Chicago*, 78 N.E. (2d) 660 (Ill., App., Apr. 12, 1948). Reh. den. Apr. 23, 1948.

Permits for Meetings and Carrying Placards in Public

The New York Court of Appeals on July 17, 1948, upheld a New York City regulation requiring a permit for the holding of meetings or carrying of placards in public parks.* The Court, in a case entitled *People* v. *Haham*, finds that the permit regulation has not been used for censorship purposes and that it has been administered in a non-discriminatory way. The Court concludes:

"The regulation, we repeat, confers no power to suppress the publication of facts or opinions. On the contrary, as we have tried to indicate, it is in essence a non-discriminatory provision which has for its sole objective the safety, comfort and convenience of the people of the City in their appropriate uses of its public parks. To our minds, the regulation so read is a reasonable measure of local control which affects civil liberties only in an allowable minor degree."

The defendants had exhibited placards in City Hall Park on March 15, 1946, attacking Winston Churchill at a time when he was entering the City Hall for an official reception.

* For another discussion of civil liberties in the municipal field, see "Sound Trucks and Freedom of Speech," by Charles S. Rhyne, THE AMERICAN CITY, August 1948, pages 120-121.

Elections—Voting Machines—Authority to Use in Bond Election

Where statute mandatorily required use of voting machines in all primary and general elections, held that permissive language of statute for use of machines in other elections, and use thereof by City of New Orleans in bond-issue election, did not render act unconstitutional. *Woulfe* v. *Morrison*, 34 So. (2d) 251 (La., Dec. 15, 1947). *Reh den.* Feb. 16, 1948.

Housing—New York City Housing Authority Held Separate Corporation—Not Agents of Either State or City

In action against state where claimant argued he was entitled to an examination before trial as an employee of New York City Housing Authority, therefore an employee of the state, held that housing authorities are separate, legally independent public corporations and are neither agents of state nor municipalities. *Ciulla* v. *State*, 77 N.Y.S. (2d) 545 (N. Y. Ct. of Claims, Mar. 9, 1948).

Intoxicating Liquors—Distance Between Stores of Licensees—Right Of Permit Holder to Enjoin Issuance Of License to Another

Where city ordinance prescribed 2,500 feet as distance between liquor package stores, held that existing operator of store could not maintain action to prevent issuance of another license by city to one whose location was less than prescribed distance, as his license, at most, is personal temporary privilege. *Turner* v. *City of Miami*, 34 So. (2d) 551 (Fla., Mar. 23, 1948).

Mercantile License Tax—Pittsburgh Levy Attacked as Duplication of State Tax

In action to restrain collection of city mercantile-license tax on ground such tax duplicated state's corporate net income tax, held that state tax was property tax and hence did not render invalid city mercantile tax which was on gross volume of business. *Federal Drug Co.* v. *City of Pittsburgh*, 57 Atl. (2d) 849 (Pa., Jan. 19, 1948).

Policemen and Firemen—State Minimum Wage Law—Allowance Of Credit for Service Prior to Passage of Law

Where state legislature enacted minimum wage law for policemen and firemen which also provided for additional monthly sum for each five years' service, held that service performed prior to passage of law could be included in computing pay of policemen and firemen as length of service is frequently used as basis for compensation. *City of San Antonio* v. *Baird*, 209 S. W. (2d) 224 (Tex. Civ. App., Feb. 18, 1948) *Reh. den.* Mar. 18, 1948.

Searches and Seizures—Ordinance Guaranteeing Rights Invalid as Vague

Where ordinance only provided that right of people of city "to be secure in their persons, homes, papers and effects against unreasonable searches and seizures shall not be violated," held that such ordinance was void for uncertainty. *Price Municipal Corporation* v. *Jaynes*, 191 Pac. (2d) 606 (Utah, Mar. 31, 1948).

Taxicabs—Ordinance Prohibiting Stopping for Over Five Minutes—Validity

In action to restrain enforcement of ordinance of City of Caruthersville prohibiting taxicabs from stopping on congested streets for a period in excess of 5 minutes, held that such ordinance was not invalid as a special law prohibited by state constitution since it applies to all taxicabs alike. *Jones* v. *Walker*, 209 S. W. (2d) 147 (Mo., Mar. 8, 1948).

Taxicabs—Out-of-Town Operations Without State Certificate of Convenience and Necessity

Where taxicabs operated between City of El Paso and other towns and villages, and held only taxi license from City of El Paso, held that injunction was properly issued to enjoin operations beyond suburbs of city without certificate of public convenience and necessity from State Railroad Commission. *Villalobos* v. *Holguin*, 208 S. W. (2d) 871 (Tex., Feb. 11, 1948. *Reh. den.*, Mar. 17, 1948.

Tobacco—Power of City to Impose Both Occupational and License Tax on Upheld

In action contesting validity of ordinances imposing occupational tax upon dealers in tobacco products and license tax measured by quantity of tobacco sold, held that under city charter city had power to impose tax for both regulatory and revenue purposes. *Smith* v. *City of Miami*, 34 So. (2d) 544 (Fla., Mar. 23, 1948). *Reh. den.* Apr. 10, 1948.

Workmen's Compensation—Policemen—Accident Arising in Course of Employment

Where borough marshall was part-time peace officer subject to call as occasion demanded and entitled to payment only for services rendered on specfic assignments, and met his death as result of heart attack while driving borough police car, held that even though officer was not on specific assignment at time, was compensable "accident arising out of and in course of employment." *Van Ness* v. *Borough of Haledon*, 56 Atl. (2d) 888 (N. J., Jan. 29, 1948).

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BEFORE YOU CHOOSE ANY PARKING METER

Never equaled in engineering design or operation, Rhodemaster again sets the pace in metered parking with a great new feature now incorporated into every Rhodemaster. This new Rhodemaster can be disassembled for servicing in less than ten seconds, without the use of a single tool . . . not even a screw driver. It sounds amazing . . . but it's true.

The importance of this engineering triumph to your city can best be measured in terms of far greater parking satisfaction. Only in Rhodemaster, the parking meter that comes closest to engineering perfection, is this remarkable triumph available. It makes Rhodemaster the fastest, easiest, and lowest maintenance cost parking meter to service. Any MARK-TIME representative will demonstrate this 10-second test for you. M. H. RHODES, INC. Hartford 6, Conn.

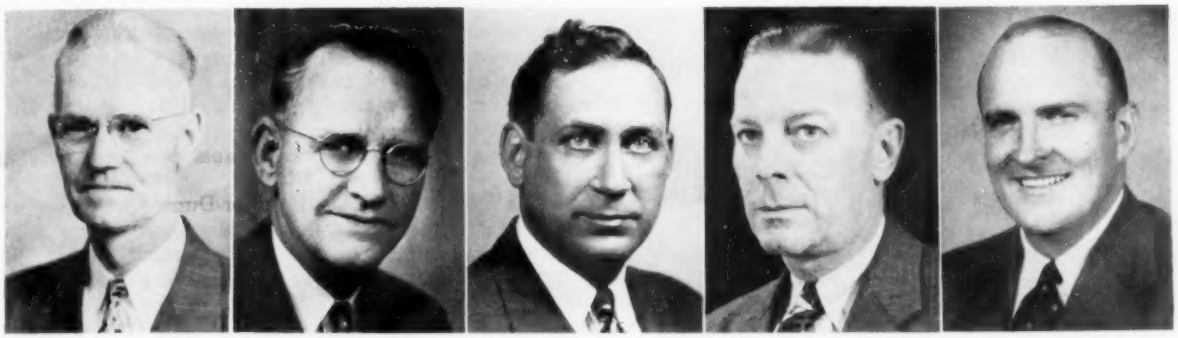
SEE THIS COMPARISON TEST MADE

The makers of Rhodemaster invite you to make a comparison TAKE-APART TEST of Rhodemaster against any or all other meters. Time each test . . . compare the engineering features that mean so much to parking meter satisfaction for your city.

IT TAKES LESS THAN 10 SECONDS TO BE CONVINCED

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*



James Deneen
Montevideo, Minn.

Phil Minner
Liberal, Kans.

Robert D. Heitsch
Farmington, Conn.

John C. Barker
Fort Fairfield, Maine

Arthur S. Owens
Roanoke, Va.

R. MERRITT BAKER, technical advisor and city consultant to North Sacramento, is the first manager of Auburn, Calif.

DONALD H. BLATT, recent graduate of Boston University, has been appointed manager of Calais, Maine.

F. ROBERT BUECHNER, manager of Grand Ledge, Mich., 1923-24, Gladstone, Mich., 1925-35, Piqua, Ohio, 1935-41, Superior, Wis., 1941-46, and of Hamilton, Ohio, 1946-48, has been appointed at Flint, Mich.

IRVING H. CALL has been appointed manager of Fairbanks, Alaska.

HAROLD N. CORBIN, administrative assistant to the manager of Oakland, Calif., has been appointed at Porterville, Calif.

JAMES L. DICKSON, manager of Manistique, Mich., 1946-48, is the first manager of Clare, Mich.

HERBERT C. GREGORY, assistant manager, has succeeded Steve Edwards (retired) at Quincy, Fla.

FRANCOIS GRENIER has been appointed manager of Malartic, Quebec.

R. H. KOETHER, city engineer, is manager of Yoakum, Texas.

ALCIDE LAFONTAINE, city engineer, is manager of Valleyfield, Quebec.

R. G. LINGLEY, consulting engineer, has been appointed at Bloomfield, Conn.

H. J. MACCOTTER, city engineer, has succeeded Walter Bartholomew at Jacksonville Beach, Fla.

C. T. MCDONALD, community manager of Middle River, Md., becomes the manager of Greenbelt, Md.

E. KEITH MONTGOMERY has succeeded W. F. Bowers, manager since 1927, at Monte Vista, Colo.

ARTHUR J. MULVIHILL is the first manager of DeSoto, Mo.

DONALD M. OAKES, manager of Alpena, Mich., since 1942, has become manager of Berkley, Mich.

CHARLES ODOM, city employe for 24 years, is manager of Bartow, Fla.

CLIFFORD G. PETRIE, city engineer and assistant city manager of Las Vegas, Nev., is the first manager of Manhattan Beach, Calif.

HUGH RICE, manager of Lexington, Va., 1938-41 and manager of State College, Pa., since 1946, has become manager of Williamsburg, Va.

WILLIAM RICHARDS, manager of Phoenix, Ariz., in 1947, is the first manager of Merced, Calif.

DANIEL ROBINSON, certified public accountant, is manager of Albemarle County, Va.

NEAL D. SMITH, manager of Ontario, Calif., 1939-45, and city engineer and assistant city manager of San Diego since 1945, becomes first manager of Santa Cruz, Calif.

JACK TALLENT, graduate of the Department of Government Management, University of Denver, and at present assistant to City Manager Windom of St. Petersburg, Fla., has been appointed first manager of Camden, S. C.

MISS LOUISE I. TIMONEY has succeeded her father, James A. Timoney, at Vassalboro, Maine.

J. T. VAN HOOK, statistician and engineer with the Oklahoma State Highway Department, is manager of Woodward, Okla.

RALPH L. YANISH, supervisory engineer, Reconstruction Finance Corporation, has been appointed at Quakertown, Pa.

CLARENCE E. RIDLEY
Director
International City Managers Association

Corrections

In the August issue two portraits of city managers were captioned erroneously. E. R. Cross is manager of Lexington, Nebr., and Neal Harr is manager of Belleville, Kans.

Urban Redevelopment Study Started

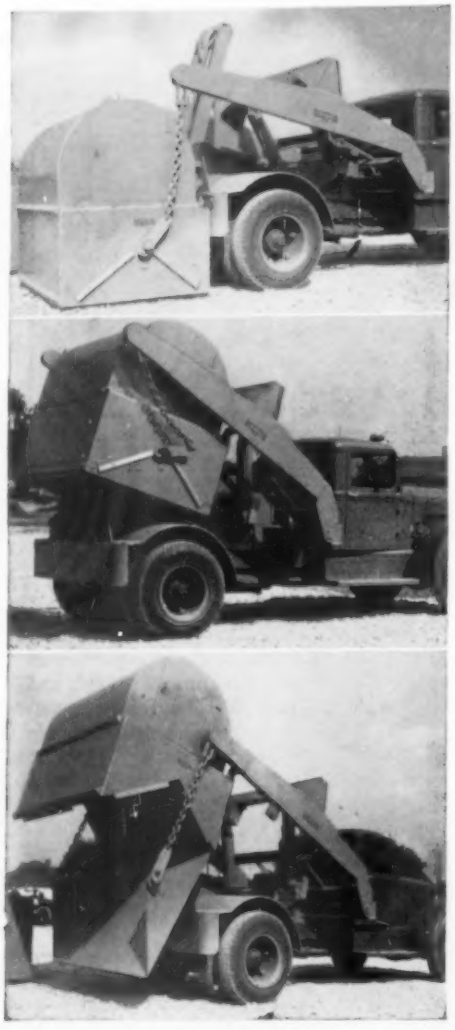
A 30-MONTH research project, titled the Urban Redevelopment Study, has been started with headquarters at 1313 E. 60th St., Chicago 37, Ill., and with Coleman Woodbury as director.

Scope of the study, made possible through a special grant of private funds, will include investigation of programs aimed at eradicating physical decay in cities, according to Mr. Woodbury, and also will cover "ways to assure a favorable environment for a vigorous and healthful civic, economic and social life for all urban dwellers—now and in the future."

The study will attempt to identify the forces causing the accelerating spread of blighted areas and devise means to counteract them. The staff of the study will attempt to clarify relationships existing between the spread of blight and the growth of metropolitan areas. Among factors of urban change involved will be the continued migration to urban communities, decentralization of industry, and recent developments in mass transportation, construction, housing, and local government services and finance, including urban planning. "Sample" cities will be chosen for comparative analysis.

The Study's organizing committee includes Herbert Emmerich, chairman, Public Administration Clearing House; Charles B. Bennett, Los Angeles; Ernest J. Bohn, Cleveland; Walter H. Blucher, American Society of Planning Officials, and Robert D. Sipprell, National Association of Housing Officials.

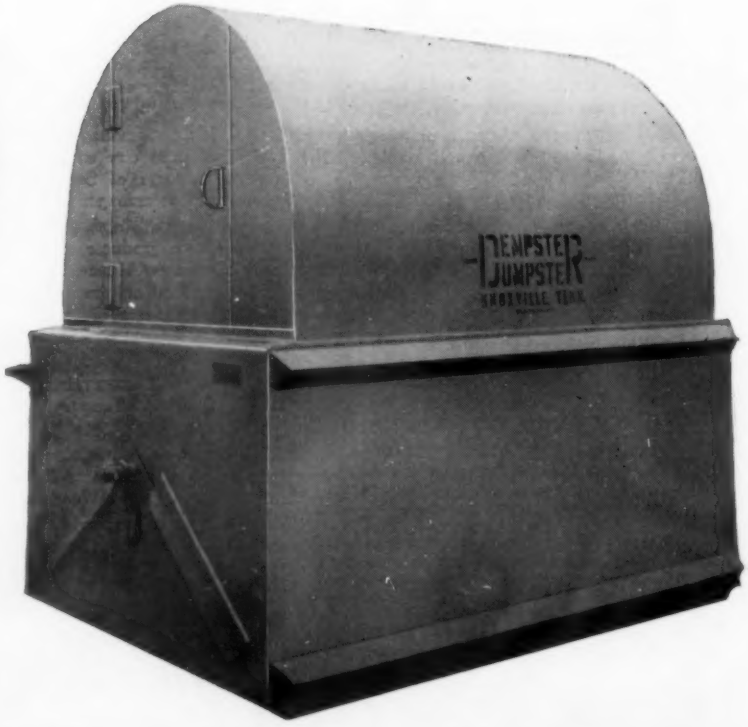
No Two Cities Have Exactly The Same Trash and Rubbish Collection Problem...



The amazingly simple stages of pick-up, hauling and dumping the detachable containers are shown in the three photos above. In the top photo, driver has backed the truck hoisting unit up to the 8-cu. yd. apartment type container, attached two chains and returned to the hydraulic controls in the truck cab. In center photo, container has been hydraulically lifted into carrying position ready for hauling to disposal area for automatic dumping as shown in the bottom photo.

It's true! No two cities have the same problems of Trash and Rubbish Collection. In fact, no two parts of any one city have the same problems. In downtown areas, high concentrations of bulk rubbish must be collected almost daily; in housing centers some collections are made twice weekly and in residential districts one collection a week is sufficient. That's why in every city, a flexible system is needed. The Dempster-Dumpster System of rubbish collection meets every requirement.

With the Dempster-Dumpster System, your city can "tailor" rubbish collection to meet the output of any given section, regardless of the volume. Here's how it works. Enclosed rubbish containers, such as the one shown below are placed at collection points in business districts, apartment and housing areas, at schools and at factories. Once the rubbish is placed in these containers, no wind or animal can scatter it, no rats or flies can contaminate it. As these containers are filled, a Dempster-Dumpster truck hoisting unit, operating on scheduled rounds, picks up each container hydraulically, hauls it to and dumps it at the disposal area, then returns the empty container to its original position. One truck and one man, the driver, handle the entire operation at a tremendous saving in time, money and equipment. Why not write today for complete information.



DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS, Inc **898 Dempster Bldg., Knoxville 17, Tenn.**

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Sept. 9-11—Saranac, N. Y.
County Officers' Association, State of New York. Annual Meeting (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Sept. 10-11—Grand Forks, N. D.
League of North Dakota Municipalities. Annual Convention. Exec. Sec., Myron H. Atkinson, P. O. Box 358, Bismarck, N. D.

Sept. 12-16—Mackinac Island, Mich.
International City Managers Association. Annual Convention (Hotel Grand). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago.

Sept. 13-17—New York, N. Y.
American Water Works Association—New York Section. Fall Meeting (Hotel Pennsylvania). Sec., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Sept. 13-14—Detroit, Mich.
Businessmen's Conference on Urban Problems, Chamber of Commerce of the United State, sponsor (Hotel Statler). Mgr., Construction and Civic Development Dept., F. Stuart Fitzpatrick, Washington, D. C. Notify Board of Commerce, Detroit 26, Mich., of expected attendance.

Sept. 14-15—Des Moines, Iowa
Iowa Sewage Works Association. Annual Convention (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

Sept. 14-17—New York, N. Y.
New England Water Works Association (Hotel Pennsylvania)). Sec., Joseph C. Knox. 204 Tremont Bldg, Boston, Mass.

Sept. 15-17—Pittsburgh, Pa.
Pennsylvania State Association of County Commissioners. Annual Convention (Hotel William Penn). Sec.-Treas., Herbert S. Bolger, Court House, Hollidaysburg, Pa.

Sept. 16-17—Cheyenne, Wyo.
American Water Works Association—Rocky Mountain Section. Annual Convention (Hotel Plains). Sec.-Treas., O. J. Ripple, 710 Colorado Bldg., Denver 2, Colo.

Sept. 16-18—Long Beach, Calif.
American Institute of Planners. National Conference (Hotel Lafayette). Exec. Sec., Draveaux Bender, Room 7-335, M.I.T., 77 Massachusetts Ave., Cambridge 39, Mass.

Sept. 19-24—Salt Lake City, Utah
American Association of State Highway Officials. Annual Meeting. Exec. Sec., Hall H. Hale, 1220 National Press Building, Washington, D. C.

Sept. 19-22—Long Beach, Calif.
League of California Cities. Annual Convention (Municipal Auditorium). Exec. Dir., Richard Graves, Hotel Claremont Bldg., Berkeley, Calif.

Sept. 20-22—Wichita, Kans.
League of Kansas Municipalities. Annual Meeting (Hotel Broadview). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 20-24—Boston, Mass.
Illuminating Engineering Society. Annual Convention (Hotel Statler). Sec., A. D. Hinckley, IES National Technical Conference, 51 Madison Ave., New York 10, N. Y.

Sept. 21-22—Lafayette, Ind.
Industrial Waste Conference. Purdue University (Hotels Fowler and Lahr, Purdue Union Club). Chairman, Don E. Bloodgood, Civil Engineering Bldg., Purdue University, Lafayette, Ind.

Sept. 22-24—Flint, Mich.
American Water Works Association—Michigan Section. Annual Convention (Hotel Durant). Sec.-Treas., Raymond J. Faust, Chief, Division of Water Supply, Dept. of Health, Lansing 4.

Sept. 22-24—Atlanta, Ga.
Georgia Water and Sewage Association. Annual Meeting (Georgia School of Technology). Sec.-Treas., Van P. Enloe, Rt. No. 7, Box 372, Atlanta, Ga.

Sept. 22-24—Mammoth Cave, Ky.
Kentucky Municipal League. Annual Convention (Hotel Mammoth Cave). Exec. Sec., Carl B. Wachs, University of Kentucky, Lexington 29, Ky.

Sept. 22-24—Reading, Pa.
League of Cities of the Third Class in Pennsylvania. Annual Convention (Hotel Abraham Lincoln). Pres., Walter E. Greenwood, Room 302, City Hall, Harrisburg, Pa.

Sept. 23-24—Minot, N. D.
North Dakota Water and Sewage Works Conference. Annual Convention (Hotel Clarence Parker). Exec. Sec., Jerome H. Svore, Dir., Div. of Sanitary Engineering, State Dept. of Health, Bismarck, N. D.

Sept. 26-28—Old Point Comfort, Va.
League of Virginia Municipalities. Annual Convention (Hotel Chamberlin). Exec. Sec., H. J. Baumes, 902 Travelers Bldg., Richmond.

Sept. 26-30—Atlantic City, N. J.
American Transit Association. Annual Convention (Hotel Traymore). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept. 26-Oct. 1—Omaha, Nebr.
National Recreation Congress. Annual Convention (Hotel Fontenelle). Sec., T. E. Rivers. National Recreation Association, 315 Fourth Ave., New York, N. Y.

Sept. 26-30—Milwaukee, Wis.
National Association of Assessing Officers. Annual Convention (Hotel Schroeder). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 29-30—Clarksburg, W. Va.
American Water Works Association—West Virginia Section. Annual Convention (Hotel Stonewall Jackson). Sec., John B. Harrington, State Department of Health, Charleston 5, W. Va.

Sept. 30-Oct. 1—Sioux Falls, S. D.
South Dakota Water and Sewage Works Conference. Annual Convention (Hotel Carpenter). Sec., W. W. Towne, Dir., Division of Sanitary Engineering, State Board of Health, Pierre, S. D.

Oct. 3-6—Boston, Mass.
American Institute of Park Executives, Fiftieth Anniversary. Annual Convention. Exec. Sec., David Hovey, Box 422, Rockford, Ill.

Oct. 4-6—El Paso, Texas
League of Texas Municipalities. Annual Convention (Hotel Cortez). Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin 21, Texas.

Oct. 4-7—Denver, Colo.
National Tax Association. Annual Conference. (Hotel Cosmopolitan). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Oct. 4-7—Buffalo, N. Y.
International Municipal Signal Association. Annual Meeting (Hotel Statler). Sec., Irvin Shulsinger, International Municipal Signal Association, Inc., 11 W. 42nd St., New York 18.

Oct. 4-7—Ottawa, Canada
Civil Service Assembly. Annual Conference on Public Personnel Administration. (Hotel Chateau Laurier, Hotel Lord Elgin). Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

Oct. 5-6—Fort Dodge, Iowa
American Water Works Association—Iowa Section. Annual Convention (Hotel Wahkonsa). Exec. Sec., H. V. Pedersen, Supt. and Mgr., City Water Works, Marshalltown, Iowa.

Oct. 6-9—St. Louis, Mo.
Association of School Business Officials. Annual Convention (Hotel Jefferson). Sec.-Treas., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

Oct. 7-8—Mansfield, Ohio
American Water Works Association—Ohio Section. Annual Convention (Hotel Mansfield-Leland). Sec.-Treas., F. P. Fischer, Sales Engineer, Wallace & Tiernan, Cleveland, Ohio.

Oct. 7-8—Hot Springs, Ark.
Arkansas Municipal League. Annual Convention (Hotel Arlington). Exec. Dir., Glenn G. Zimmerman, 401 Main, No. Little Rock, Ark.

Oct. 10-12—Wichita, Kans.
Kansas Association of Municipal Utilities. Annual Meeting (Hotel Broadview). Ass't Sec.-Treas., A. D. McGuire, P. O. Box 191, Osawatomie, Kans.

Oct. 10-13—Galveston, Texas
American Water Works Association—Southwest Section. Annual Convention (Hotel Buccaneer). Sec.-Treas., L. A. Jackson, Mgr. Little Rock Water Works, Little Rock, Ark.

Oct. 10-13—Philadelphia, Pa.
National Association of Commercial Organization Secretaries. Annual Convention (Hotel Benjamin Franklin). Exec. Sec., Miss Elizabeth Glenn, 1615 H St., NW., Washington 6, D. C.

Oct. 10-14—New York, N. Y.
International Association of Chiefs of Police. Annual Conference (Hotel Pennsylvania). Exec. Sec., Edward J. Kelly, 918 F St., NW., Washington, D. C.

Oct. 11-13—Springfield, Ill.
Illinois Municipal League. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, I.M.L., 537 South Fourth St., Springfield, Ill.

Oct. 11-13—New York, N. Y.
American Society of Planning Officials. Annual Meeting (Hotel New Yorker). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

Oct. 11-13—Philadelphia, Pa.
Institute of Traffic Engineers. Annual Meeting (Hotel Warwick). Exec. Sec., Robert S. Holmes, 212 Strathcona Hall, New Haven 11, Conn.

Oct. 13-14—Hastings, Nebr.
League of Nebraska Municipalities. Annual Convention (Hotel Clark). Exec. Sec., C. E. Beals, 408 Continental Bldg., Lincoln, Nebr.

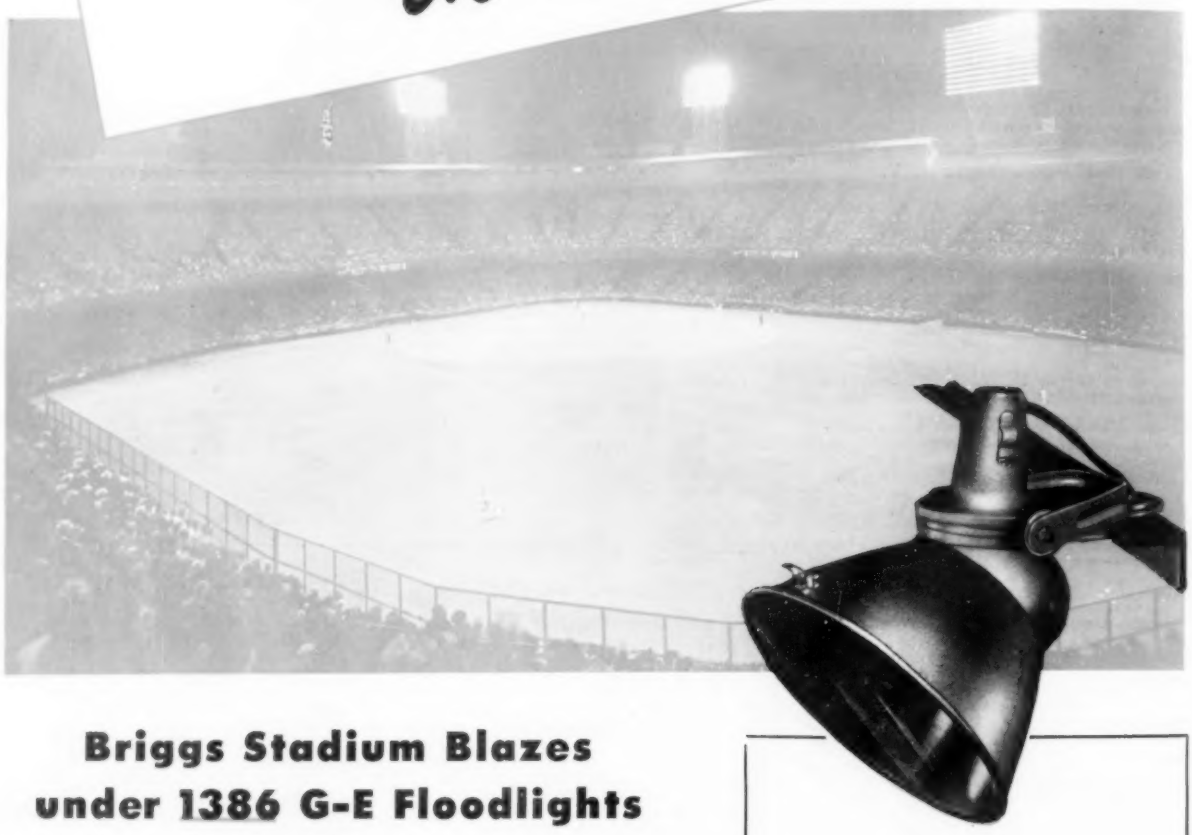
Oct. 13-15—Boston, Mass.
American Society of Civil Engineers. Regional Meeting (Hotel Statler). Sec., William N. Carey, 33 W. 39th St., New York, N. Y.

Oct. 13-15—Atlantic City, N. J.
Pennsylvania Water Works Association. Annual Meeting (Hotel Chalfonte-Haddon Hall). Sec.-Treas., E. R. Hannum, 510 Telegraph Bldg., Harrisburg, Pa.

Oct. 13-15—Montgomery, Ala.
American Water Works Association—Alabama-Mississippi Section. Annual Meeting (Hotel Whitley). Sec., John L. Snow, First National Bank Bldg., Montgomery, Ala.

Oct. 13-16—Seattle, Wash.
National Association of Housing Officials. Annual Meeting (Hotel Olympic). N.A.H.O., 1313 E. 60th St., Chicago 37, Ill.

Brightest Nightspot on earth



Briggs Stadium Blazes under 1386 G-E Floodlights

Detroit baseball fans are enjoying their first season of night games in the most brightly lighted sports area on earth. Home of the Tigers, Briggs Stadium owes its super-brilliance to 1386 G-E Floodlights which provide more than 200 foot candles of illumination over the playing area.

These modern, 1500-watt floodlights—first used in the Yankee Stadium, and last year at Fenway Park and Crosley Field—are being introduced into one stadium after another throughout the country. They are becoming even more popular with communities lighting smaller playing fields.

The popularity of the L-69 floodlight is due in large part to its beam efficiency—the highest of any floodlight in its general price class. Ten per cent more illumination per watt makes its ideal for use where costs must be considered.

Further details on the new L-69 floodlight, as well as standard plans covering lighting layouts and wiring methods for local sports or recreation programs, may be had from your nearest G-E lighting office. Or, if you prefer, write to Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

451-122

Interested in the after-dark sports for your school or town? You'll find these important advantages in the new G-E Type L-69 Floodlight:

QUICK INSTALLATION—Lamp is inserted without disturbing reflector assembly. No separate front door to handle. Rifle sight aiming permits daytime adjusting.

LESS MAINTENANCE—Front glass, spun sealed to reflector, provides permanent seal against dirt and bugs. No tools needed for servicing.

SUSTAINED EFFICIENCY—Sealed construction and Alzak*-processed aluminum reflector assure longer operation at original high efficiency.

**Manufactured under the Aluminum Corporation of America patents.*

Oct. 14-15—Bedford, Pa.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Convention (Hotel Bedford Springs). Sec.-Treas., Claude C. Fogelman, 717 Main St., Northampton, Pa.

Oct. 14-16—Toronto, Ontario
COMMUNITY PLANNING ASSOCIATION OF CANADA. Ontario Regional Conference and National Annual Meeting. Exec. Dir., Alan H. Armstrong, 56 Lyon St., Ottawa, Canada.

Oct. 15-17—Phoenix, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Convention (Hotel Westward Ho). Sec., Mrs. Helen Rotthaus, San. Eng. Div., State Department of Health, Phoenix, Ariz.

Oct. 17-19—Charlotte, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Conference (Hotel Charlotte). Exec. Sec., Mrs. Davetta L. Steed, 1009 Raleigh Building, Raleigh, N. C.

Oct. 17-20—Boston, Mass.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Conference (Hotel Copley Plaza). Exec. Dir., Donald F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 18-20—Pittsburgh, Pa.**
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference (Hotel William Penn). Chairman, H. M. Olson, Hotel William Penn, Pittsburgh 30, Pa.

Oct. 18-20—Philadelphia, Pa.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Bellevue-Stratford). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

Oct. 18-21—Detroit, Mich.
FEDERATION OF SEWAGE WORKS ASSOCIATIONS (Hotel Statler). Sec.-Treas., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 18-22—Chicago, Ill.
NATIONAL SAFETY COUNCIL. Congress and Exposition (Stevens-Congress-Palmer House-Sherman). Pres.-Vice-Pres., Ned H. Dearborn, 20 North Wacker Drive, Chicago 6, Ill.

Oct. 20-22—Philadelphia, Pa.
AMERICAN WATER WORKS ASSOCIATION—Four States and Western Pennsylvania Sections. Annual Convention (Hotel Penn Sheraton). Sec. (Four States), W. A. Welch, Industrial Chemical Sales Div., W. Va. Pulp and Paper Co., 742 Public Ledger Bldg., Philadelphia, Pa. Sec. (Western Pennsylvania), L. S. Morgon, State Dept. of Health, Greensburg, Pa.

Oct. 24-26—Jefferson City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section and Missouri Water & Sewage Conference. Annual Convention (Hotel Governor). Sec.-Treas., Warren A. Kramer, Div. of Health, State Office Bldg., Jefferson City, Mo.

Oct. 25-26—Richmond, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Convention (Hotel John Marshall). Sec.-Treas., W. H. Shewbridge, State Office Bldg., Richmond 22, Va.

Oct. 25-29—State College, Pa.
PENNSYLVANIA STATE COLLEGE WATER WORKS OPERATORS SCHOOL. Exec. Dir., R. E. Stiemke, Professor, Sanitary Engineering, State College, Pa.

Oct. 27-29—Riverside, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Hotel Mission Inn). Sec., H. C. Medbury, Water Dept., 425 Mason St., San Francisco 2, Calif.

Oct. 28-29—LaCrosse, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Convention (Hotel Stoddard). Sec., Leon A. Smith, Supt. Water Works, City Hall, Madison, Wis.

Oct. 28-30—Quincy, Ill.
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Annual Convention (Hotel Lincoln Douglas). Exec. Sec., Marjorie M. Dickinson, 621 E. Capitol Ave., Springfield, Ill.

Nov. 1-3—Ottawa, Ontario
CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Meeting (Hotel Chateau Laurier). Sec.-Treas., A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont.

Nov. 4-6—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

Nov. 8-10—Asheville, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section, and North Carolina Sewage Works Association. Annual Convention (Hotel George Vanderbilt). Sec.-Treas., George S. Moore, P. O. Box 125, Albermarle, N. C.

Nov. 8-10—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference (Hotel Chalfonte-Haddon Hall). Exec. Sec., James J. Smith, 1212 Trenton Trust Bldg., Trenton, N. J.

Nov. 8-12—Boston, Mass.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting. Exec. Sec., Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y.

Nov. 9-12—Miami, Fla.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Hotel Everglades). Sec.-Treas., Chief Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

Nov. 10-12—St. Louis, Mo.
MISSOURI MUNICIPAL LEAGUE. Annual Convention (Hotel Chase). Exec. Dir., Bruce J. Carl, Columbia, Mo.

Nov. 11-12—Berkeley, Calif.
WESTERN GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Hotel Claremont). Exec. Sec., John C. Bollens, 117 University Library, Berkeley 4, Calif.

Nov. 18-19—Augusta, Maine
MAINE MUNICIPAL ASSOCIATION. Annual Convention (City Hall). Exec. Sec., Leigh Webber, 97 Water St., Hallowell, Maine.

***Nov. 18-19—Milwaukee, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Hotel Schroeder). Exec. Sec., Frederick N. MacMillin, 30 E. Johnson St., Madison 3, Wis.

***Nov. 18-20—Eugene, Ore.**
LEAGUE OF OREGON CITIES. Annual Convention. Exec. Sec., Herman Kehrli, Bureau of Municipal Research, University of Oregon, Eugene, Ore.

Nov. 18-20—Panama City, Fla.
AMERICAN WATER WORKS ASSOCIATION—Florida Section. Annual Convention (Hotel Dixie Sherman). Sec., S. K. Keller, Box 510, Clearwater, Fla.

Nov. 22-24—Boston, Mass.
NATIONAL MUNICIPAL LEAGUE. National Conference (Hotel Statler). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

Dec. 2-4—Washington, D. C.
NATIONAL INSTITUTE OF MUNICIPAL OFFICERS. Annual Conference. Exec. Dir., Charles S. Rhyne, 730 Jackson Place, NW., Washington, D. C.

***Dec. 6-8—Augusta, Ga.**
AMERICAN WATER WORKS ASSOCIATION—Southeast Section. Annual Meeting (Hotel Sheraton Bon-Air). Exec. Sec., W. T. Linton, Principal Sanitary Engineer, 433 Wade Hampton Bldg., Columbia, S. C.

Dec. 6-10—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (Building of National Academy of Sciences—National Research Council). Dir., Roy W. Crum, 2101 Constitution Ave., Washington 25.

Dec. 8-11—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Edgewater Beach). Dir., Howard L. Russell, 1313 E. 60th St., Chicago 37, Ill.

Dec. 13-15—Washington, D. C.
AMERICAN MUNICIPAL ASSOCIATION. Annual Convention (Hotel Statler). Exec. Dir., Earl D. Mallery, 522-526 Transportation Bldg., 17th and H Sts., NW., Washington, D. C.

***Jan. 19-21—New York, N. Y.**
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting (Hotel Commodore). Sec., William N. Carey, 33 W. 39th St., New York, N. Y.

Architectural Control

(*Continued from Page* 113)

cerned. In every instance of denial by the Planning Commission, the Inspector has refused to issue a permit. No court cases have so far resulted. This is probably due to the fact that the Commission has been rather lenient. It has held out for changes in many cases and has denied others. Some builders who were forced to improve their buildings have condemned the Commission, but later have thanked it for requiring the changes. Owners in the neighborhood who have expected greater results from the ordinance have criticized it. But by-and-large, the operation of the measure has been sufficiently successful to merit its continuance.

Ordinarily plans are approved in the office of the Commission by a draftsman. If, in his opinion, the building needs revision, it is usually taken up with the City Planning Architect or the head of the Department. If the matter is still disputed, it comes before the Planning Commission.

There are weaknesses in the practice of architectural control which are willingly admitted. Some of these could be helped by a stronger legal authority. Some can never be overcome. One general criticism is, that too many people know too little about architecture. Ignorance of what is good in design, and opposition to being told how to improve a plan, makes architectural control a personal matter.

Certainly no one should embark upon a program of architectural control without a great deal of patience. The path is difficult and the accomplishments are hard to measure.

Another source of information on the subject is "Architectural Control, a collection of references, summaries, and excerpts from various municipal zoning ordinances," published in 1941 by the American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill. 9 pp. Mimeo. 15 cents.

***Commemoration Through Community Services*, a handsome brochure on living memorials, is available from *The American City*, 470 Fourth Ave., New York 16, N. Y., for $1.00. Special price for quantity orders.**

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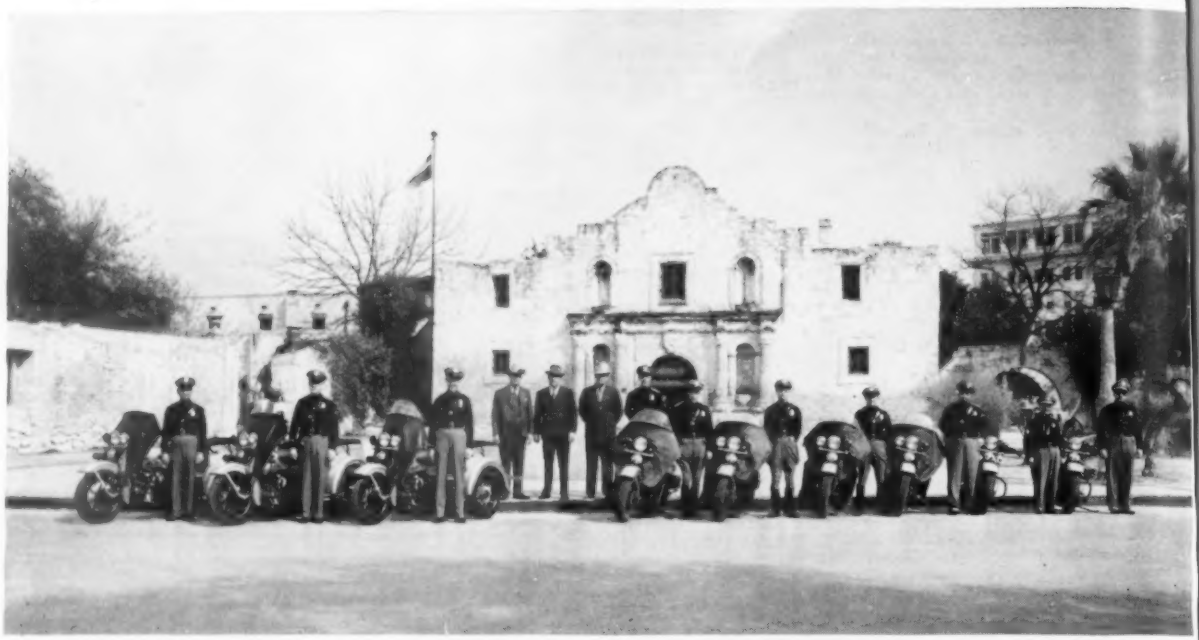

Shown in front of the historically famous Alamo are 6 new Harley-Davidson Motorcycles and 3 Servi-Cars of San Antonio's Traffic Squadron of 21 machines. Left to right, rear row: Commissioner of Police Raymond South, Dealer F. M. Neuendorff, Chief of Police Fred Palmer, Captain of Patrol George Bichsel — front row: Officers Leroy Henry, Boone F. Jackson, Roy F. Journey, Darwin Brooks, Jewett Goodwin, John Boyle, Louis Garcia, Patrol Sergeant Eddie Braun, Patrol Lieutenant Ernest J. Gonzales.

"More Motorcycles" is San Antonio's answer to increased traffic problems!

TEXANS take their laws seriously! And that goes for the fine traffic squadron of the San Antonio Police Department. To maintain their record for efficient traffic control and accident prevention, San Antonio police have long relied on motorcycles. Commissioner Raymond South and Chief of Police Fred Palmer are especially proud of their 100% Harley-Davidson squadron and the effectiveness with which it handles not only San Antonio's normally heavy traffic, but the added winter load of tourist travel. Like San Antonio, hundreds of other cities have proved that no other method matches the motorcycle combination for getting best results in traffic enforcement and utilizing manpower to utmost advantage. Your city can benefit similarly. Phone your dealer for information about the all-around utility of Harley-Davidson Police Motorcycles, Servi-Cars and Side-Cars.

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MOTORCYCLES — **POLICE** — **SERVI-CARS**

BETTER TRAFFIC CONTROL

Control Tools for Applying Municipal Budgetary Techniques

By **BERTILL W. JOHNSON**
Finance Director
Winnetka, Ill.

IN a recent talk before the annual conference of the Municipal Finance Officers' Association at Denver, Colo., Director Johnson described the importance of budgeting in his city's development. Winnetka is a Chicago residential suburb of 13,000 population, and its city plan has been realized because of effective long-term budgeting, as well as careful attention given to current budgetary tools.

The following are the control tools ued by the Winnetka Finance Department in assisting other departments to keep within their budget as well as to assure management that individual budget items will not be exceeded except for conditions beyond the control of the department. Centralization of all financial functions enables us to use the following tools:

1. The Finance Director screens all departmental requisitions for material and contractual service to ascertain that the proper amount is charged and that amounts remain unexpended in the account.
2. A second control technique of use is that the preparation of all vouchers is in the Finance Department. Before being paid they must be approved by the Finance Director and Manager. This aids in obtaining an over-all checking of expenditures.
3. The third tool is the personnel requisition. The Finance Director also acts as personnel officer. Therefore, no appointments, transfers, separations, compensation adjustments are approved by the Manager unless approved by the Finance Director first.
4. The fourth control device is our centralized preparation and pre-audit of payrolls. Time sheets are reviewed to ascertain whether proper accounts are being charged and the master payroll is checked and approved by the Finance Director before payday is held.
5. The trial balance is used as a fifth control device. In this book are shown the budget for each item, the expenditure during each month, and the total expenditure to date. Also shown for accounts having a relative even activity, such as for waste disposal, is the monthly prorated amount for guide purposes. Department heads and the Finance Director usually review departmental accounts together so that unusual expenditures may be clarified and danger points may be rated.
6. A sixth budgetary tool is our Monthly Statement of Revenue and Expenditures which is prepared and submitted to the Finance Committee of the Council. This statement shows the percentage of the budget received and spent to date this year, as well as the percentage of the last year's budget received and spent last year to the same date for comparison purposes. A special item is included for new equipment and public improvements, in order that this major non-recurring outlay may be segregated.
7. A seventh and final tool is the Financial Director's quarterly analysis of the financial position of each fund. This report reviews the financial status with respect to the budget, the appropriation ordinance, as well as with the program of capital improvements. This analysis is submitted by the Manager to the department heads and to all members of the Council.

In this brief discussion, I hope I have not given you the impression that budgetary control in Winnetka is a complex matter. It is not. Our annual single allocation to all departments works well because of our centralized financial machinery and because our size permits both the manager and the finance director to keep in constant touch with expenditures without the complication of an allotment system or of an appropriation ledger. The use of these latter devices by a city of our type and size, we feel, would be a case in point of the "tail wagging the dog."

EDITORIAL NOTE—Some of the other excellent papers presented at the 42nd Annual Conference in MFOA are published in *Municipal Finance* for August. Copies may be obtained from the MFOA at 1313 East 60th St., Chicago 37, Ill. Subscription, $1.50 per year; 50 cents per issue.

The author will leave his Winnetka position to become city manager of Lebanon, Mo., October 1.

State Population Gains and Losses—1940-47

IMPRESSIVE population increases in the far West, and in the state of Florida, between the 1940 census and July 1, 1947, are shown by revised estimates of total population * by states, released August 9 by J. C. Capt, Director, Bureau of the Census.

The map of population trends of the 48 states published in THE AMERICAN CITY for March 1948 (page 117) was based on preliminary estimates compiled by the Census Bureau. The following table is based on the revised estimates released last month.

Per Cent Population Increase 1940-1947	*State*	*Total Population Estimate 1947*
42.1	California	9,812,000
41.8	Oregon	1,545,000
35.8	Washington	2,357,000
29.8	District of Columbia	861,000
29.1	Arizona	644,000
26.4	Nevada	139,000
22.7	Florida	2,328,000
17.4	Maryland	2,139,000
16.3	Utah	640,000
15.5	Connecticut	1,974,000
15.5	Michigan	6,069,000
12.0	Virginia	2,999,000
11.9	Indiana	3,835,000
11.2	New Jersey	4,627,000
11.1	Ohio	7,675,000
10.7	Texas	7,104,000
9.1	Delaware	291,000
8.6	New Hampshire	534,000
7.6	Louisiana	2,544,000
7.4	Massachusetts	4,635,000
6.9	Kansas	1,925,000
6.3	Illinois	8,397,000
6.2	Pennsylvania	10,512,000
6.0	Tennessee	3,091,000
5.5	Wyoming	265,000
5.1	New York	14,165,000
4.5	Maine	885,000
4.4	Rhode Island	745,000
3.5	North Carolina	3,698,000
3.5	Wisconsin	3,247,000
3.4	Minnesota	2,888,000
3.1	Missouri	3,903,000
2.9	New Mexico	547,000
2.7	South Carolina	1,951,000
2.1	Iowa	2,591,000
1.8	Colorado	1,144,000
1.8	Vermont	366,000
0.5	Georgia	3,138,000
0.1	Idaho	525,000
0.0	Alabama	2,834,000
1.0	West Virginia	1,882,000
1.8	Arkansas	1,913,000
2.3	Kentucky	2,780,000
2.3	Oklahoma	2,284,000
2.4	Nebraska	1,284,000
4.0	Mississippi	2,096,000
10.2	South Dakota	578,000
12.8	Montana	488,000
15.7	North Dakota	541,000

* The total population includes persons in the armed forces stationed in the state.

Flood-Ruined Vanport Sold for $178,591

VANPORT, ORE., destroyed by flood on Memorial Day 1948, has been sold for $178,591, according to a recent announcement of the Portland Housing Authority. What is left of the buildings, which originally cost $26,000,000, is to be disposed of by the Zidell Machinery Co. of Portland. The contractor has six months to burn the debris and remove the shattered remains of the city.

Smashed by flood waters of the Columbia River when a railroad embankment collapsed under pressure, war-built Vanport was demolished in but an hour and 40 minutes. Eighteen thousand persons were evacuated under hazardous conditions from 5,300 units in the city. Death toll throughout the total flood area, including Vanport, was 48 persons.

An authoritative story of the Pacific Northwest Flood, showing clearly how federal, state and local agencies can and do cooperate in meeting a local disaster, appears in the American Municipal Association's *Washington News Letter* for August 4, published at 522 Transportation Building, Washington 6, D. C.

INTERNATIONAL POWER AIRPORT BUILDER

Airports are no better than their runways . . . and runways are no better than their subgrades. That means compaction is a prime factor in airport construction.

When rollers are pulled by International Crawlers, such as this International TD-18 Diesel, the job gets done *right*. For the powerful International operates steadily at the correct speed, pulling its load of sheepsfoot tampers while adding its own well distributed weight to the compacting job.

International Power and International-powered equipment are top-notch tools for the tasks of airport construction and maintenance. These units handle everything from land clearing and earthmoving to paving, and carry on beyond that with snowplows, mowers and other mounted or trailed equipment.

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Municipal and Civic Publications

Financing Off-Street Parking

FINANCING MUNICIPAL OFF-STREET PARKING FACILITIES—*By Miner B. Phillipps and Irving Tenner. Municipal Finance Officers Association, 1313 E. 60th St., Chicago 37, Ill.* 1948. 65 *pp.* $2.50.

The first part of this volume discusses and analyzes principles of finance, accounting, and budgeting that are applicable to this new municipal function of providing off-street parking facilities. In it may be found answers to such questions as, who should contribute to construction and operating costs; what factors determine the type of facility, its location, and method of operation; what method or combination of financing methods should be used; how should operating expenses and revenues be estimated; should existing departments operate a facility or should a new department be assigned this responsibility; is a parking authority the answer.

The second part is a source of information as to the actual experience and proposed plans of 109 cities in the United States and Canada. In this part may be found the experience of cities with fringe parking lots, methods of financing and operating parking lots and garages, and fees charged for parking.

Urban Real Estate Principles

PRINCIPLES OF URBAN REAL ESTATE—*By Arthur M. Weimer and Homer Hoyt. The Ronald Press Co., 15 E. 26th St., New York 10, N. Y.* 1948. 512 *pp.* $4.75.

A revised edition, this book is designed for use as a text for courses dealing with real estate and land economics given in colleges and universities. It contains references, study projects, and other teaching aids for such use. It is an authoritative work on urban real estate and land economics, however, into which has been condensed much research and other valuable data.

Location, market, legal, governmental, and physical factors are given careful attention in the discussion of real estate values, especially with respect to their effects on property incomes. The administration of real estate resources is analyzed with respect to development or production, finance, and marketing. While primary consideration is given to the business practices involved, attention is also directed to the general community problems connected with the production and use of urban real estate resources. The discussion concludes with a presentation of some of the unsolved problems in the field of real estate administration.

Criteria for Delimiting a Metropolitan Area

THE URBAN AND METROPOLITAN STATUS OF THE CITY OF FLINT—*By Marian Elisabeth Dunlap, Research Fellow, Social Science Research Project, Institute for Human Adjustment, Rackham School of Graduate Studies. Available from University of Michigan Press, Ann Arbor, Mich.* 1948. *Mimeo.* 70 *pp.* 50 *cents.*

This publication is important because of the manner in which it seeks to identify criteria for defining of a metropolitan area. Included are maps and material on the following kinds of areas and their influence or dominance: women's apparel and department stores; newspaper circulation; wholesale grocery trade; correspondent banks; and worker residence. The concluding chapter compares Flint with other U. S. cities of similar size and with competing cities in Michigan.

Municipal Legal Affairs Year Book

MUNICIPALITIES AND THE LAW IN ACTION, 1948 EDITION—*Charles S. Rhyne, Editor. National Institute of Municipal Law Officers, 730 Jackson Place, N.W., Washington 6, D. C.* 325 *pp.* $10.

A record of municipal legal experience in 1947, this volume is based upon the proceedings of the 1947 annual conference of the National Institute of Municipal Law Officers. All of the Institute's committee reports, ranging from airports to zoning, are included. These reports are the work of attorneys in a practical position to know which of the many municipal legal problems are of the greatest and most urgent importance.

Other timely papers are also presented, such as those on municipalities and broadcasting, on the codification of ordinances, on the commission form of management of a municipal transit system, on rent control and eviction ordinances, and on legal aspects of municipal taxation and revenue problems.

Special discussion is also devoted to the Supreme Court decision in the case of *United States v. State of California*, involving the controversial subject of ownership of sands beneath tidal and navigable waters. Other topics of current interest and importance to municipalities are those on the proposed amendments to the Natural Gas Act, report of a panel discussion on charter revision, and several sessions pertaining to Federal-City relations.

This volume and its yearly companions provide an excellent, well-indexed, ready reference source for busy city attorneys and for city administrators generally.

Airport Pavement Design Manual

DESIGN MANUAL FOR AIRPORT PAVEMENTS—*By T. J. Kauer, Wire Reinforcement Institute, Inc., 1049 National Press Bldg., Washington 4, D. C.* 32 *pp. May* 1948.

A manual written for designers of concrete airport runways, comprehensively prepared so that it presents a thorough analysis of the problems faced. The manual is written around CAA requirements and analyses drainage systems, sub-bases, and reinforced concrete for runways, taxiways, and aprons.

Without detracting from the carefully prepared study, nevertheless many engineers will not agree with the Institute's recommendation that dowel bars be installed across all contraction joints. By using a 15- to 20-foot spacing of the joints, most agree that the aggregate interlock at the fracture will transfer the load adequately.

Community Recreation Text

COMMUNITY RECREATION, A GUIDE TO ITS ORGANIZATION AND ADMINISTRATION—*By Harold D. Meyer and Charles K. Brightbill. D. C. Heath and Company, Boston, Mass.* 1948. 704 *pp.* $5.

An authoritative text for basic courses in community recreation, this book, a comprehensive round-up of the field, emphasizes the practical aspects of recreation techniques. Recreation is treated and interpreted in its broadest possible sense, though the breadth and flexibility of approach have not prevented the authors from arriving at definite, concrete conclusions.

Public recreation is stressed because of the widespread interest in it and the demand for information about it. The many forces, sources, and interests which are required to provide a total community recreation program are discussed in detail, with major emphasis on the community as the focal point of organized recreation.

The Appendix includes lists of agencies and organizations active in recreation, recreation supply and equipment houses, and films on recreation.

Housing and Central Heating

HOUSING AMERICA—*By The Ric-Wil Company, Manufacturers of Insulated Pipe Conduit Systems, Cleveland, Ohio.* 1948. 27 *pp. Single copies free upon request.*

This booklet contains useful information about large-scale housing developments built by insurance companies and savings banks. It begins by presenting brief summaries by public officials for solving the housing problem, and urges close cooperation between private initiative and government sponsorship in meeting the needs of our cities for well-planned large-scale housing developments.

A clear-cut case is made for the inclusion of central heating systems to solve community heating needs, to help eliminate atmospheric pollution, to make important installational and operational savings, and for possible conversion to atomic-energy heat production when such methods are perfected. An engineering analysis of a central heating system is included for a possible development of 15,900 homes.

This booklet is an example of a forward-looking industrial public relations program which promotes civic improvements and, incidentally, should bring increased business for the sponsoring industry.

Clarifying Tax Theory and Practice

TROUBLE SPOTS IN TAXATION—*By Harold M. Groves. Princeton University Press, Princeton, N. J.* 1948. 105 *pp.* $2.00.

Clarifying the maze of theory and practice in taxation for the general reader, this little volume containing a series of informal essays by Professor Groves should prove of great value to those seeking enlightenment, together with a vigorous and usable philosophy, on the subject.

The overall aspects of public finance in this country are outlined, and the several economic philosophies of life through which it may be viewed are described. Against this background the specific problem of taxation, national, state and local, is projected and certain phases are selected for detailed discussion — exemptions, personal versus corporate taxation, averaging, and the broader problems of administration.

Of special interest to local officials is Chapter IV, containing an excellent discussion of "Income Versus Property Taxes for State and Local Governments." In his final chapter, Professor Groves points out that a philosophy of taxation is highly dependent upon a general philosophy of life, and that both should change and grow as the philosopher's experience broadens and deepens.

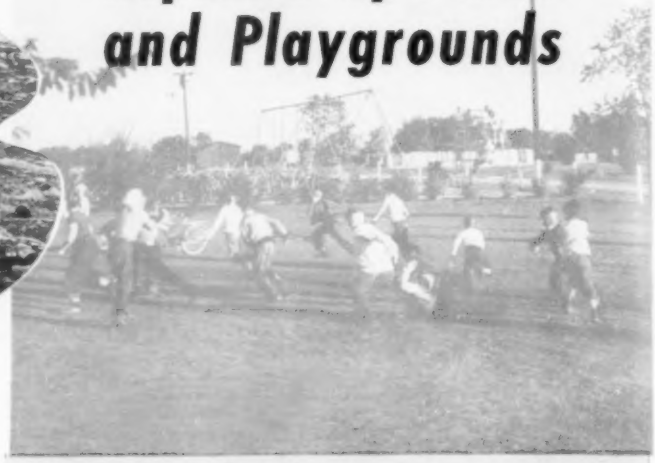
Municipal Recreation Salaries Surveyed

RECREATION SALARIES, A STUDY CONDUCTED BY THE NATIONAL RECREATION ASSOCIATION—*Reprinted from "Recreation" May* 1948. *National Recreation Association, 315 Fourth Ave., New York 10, N. Y.* 7 *pp.* 15 *cents.*

This report contains tables showing recreation salaries paid by cities grouped as to size and geographical locations. The tables also classify the various types of recreation personnel, and contain other miscellaneous information, such as car allowances, vacation and sick leave, residence requirements, and changes in salaries from 1940 to 1948. The report points out that although enormous strides in establishing standards for recreation personnel have been made since the turn of the century, conditions are still in a state of flux, and it is important to know what salaries are currently being paid now throughout the country.

THE OPEN CITY DUMP IS CLOSED

Replaced by Parks and Playgrounds



...Made Possible by The Drott Bullclam Shovel Method of Sanitary Fill

No tears will be shed over the passing of the open city dump — an eyesore of the community, an incubator of disease-carrying insects, rats, maggots, reptiles; a source of fires, of annoying stench and smoke. Soon this public menace will be gone for good.

In its place are new, clean Sanitary Fills built with Drott Bullclam Shovels. Refuse is dumped into trenches, compacted tightly and kept covered daily with good earth. Converted from wastelands, these fills not only serve as depositories for refuse, but provide future sites for landscaped parks and playgrounds. More healthful, happier communities result!

It will pay you who are anxious to be rid of disease-harboring, annoying open dumps, to investigate the Drott Bullclam Shovel Method of Sanitary Fill. Let us give you all the facts!

Cost data from cities reveal that the Drott Bullclam Shovel Method Of Sanitary Fill is by far the most economical. This one machine handles all operations. Digs the trenches, compacts and covers the refuse, maintains the site. Is also used for other construction and maintenance.

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.

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Centralized Purchasing in Washington

CENTRALIZED PURCHASING FOR WASHINGTON CITIES—*Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash. Report No. 89. May 1948.*

This report urges small cities and towns to follow the lead of the larger cities and states in establishing efficient purchasing methods. It explains the advantages of centralized purchasing and cooperative buying, and outlines the establishment of a central purchasing office, giving the legal basis for such a procedure in the state of Washington. The appendix contains various purchasing forms and other material used in Seattle, as well as the ordinance prescribing the duties, etc., of the Seattle Purchasing Agent.

Council-Manager Directory

RECENT COUNCIL-MANAGER DEVELOPMENTS AND DIRECTORY OF COUNCIL-MANAGER CITIES—*The International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. April 1948. 20 pp.* $1.00.

This handy directory discusses briefly council-manager government, and recent progress in the field. It lists the 65 cities that adopted the plan by charter or state enabling act in 1947, as well as naming the communities which rejected proposals to adopt council-manager government. One of the tables, "Percentage of Council-Manager Cities to Total Cities in United States," shows how the 771 cities with the council-manager plan (as of December 31, 1947) are distributed according to population. The names of the managers in all these cities, including those in Alaska, Puerto Rico, Canada and Ireland, are listed.

Municipal Bond Experience

MUNICIPAL BONDS, A CENTURY OF EXPERIENCE—*By A. M. Hillhouse, Prentice-Hall, Inc., New York, 1936. Available from Municipal Finance Officers' Association, 1313 E. 60th St., Chicago 37, Ill. 579 pp.* $5.00.

Still a highly valuable source of information and distilled experience, this volume, now available from the Municipal Finance Officers' Association, not only traces the history of municipal bonds, but offers suggestions for avoiding defaults on needed state remedial measures and on remedies open to creditors. The section on "Consequences of Defaults" should serve as a warning to municipalities overextending their services and utilities.

The volume points out that eternal vigilance on the part of the investor will ultimately redound to the best interests of the municipalities themselves. If investors were more discriminating, those cities that kept their financial houses in order would always reap the benefit, and those that did not would pay the penalty.

Explaining Alabama's Hospital Program

ON OUR WAY—BETTER HOSPITALS, BETTER HEALTH CENTERS, BETTER HEALTH; SO YOU WANT A HOSPITAL—FACTS FOR COMMUNITY LEADERS; *and* ONE WAY TO GOOD HEALTH—ALABAMA'S MASTER HOSPITAL PLAN—*Three pamphlets prepared by Hospital Planning Division, Alabama Department of Public Health, Montgomery, Ala., and The Research Interpretation Council, Alabama Polytechnic Institute, Auburn, Ala.* 1948.

These excellent illustrated pamphlets explain Alabama's hospital needs, the master hospital plan for the state, the great program of hospital building authorized under the Hospital Survey and Construction Act of 1946, and the procedures community leaders must follow in order to get local hospitals established. The pamphlets are designed so that the information contained in them can be quickly and easily grasped. Publications of this type should be available for the use of community leaders in other states.

Municipal Report Planning

PLANNING THE MODERN MUNICIPAL REPORT—*Available from the Advertising Dept., The Meda Sales Co., 230 Park Ave., New York 17, N. Y. 1948. Illus. 40 pp. Available to municipal officials upon request.*

An unusual, long-range, and commendable public relations effort on the part of a large paper manufacturer, this publication is a study of the style trend in condensed, illustrated, modernized reports, issued by towns, cities, schools, and other departmental authorities. It is designed to help local officials prepare their reports in attractive and readable form, so as to reach and inform the public. The material used in the booklet has been taken in large measure from exhibits assembled by the American Institute of Graphic Arts.

Profusely illustrated with model pages from published local reports, the brochure goes through the report-preparing process step by step. Pictorial excellence and style are emphasized as the two key factors for getting information across to the public. A summary page is included that lists the physical characteristics of 531 representative municipal reports, state reports, and housing and planning reports.

Police Patrol Guide

POLICE PATROL—*By Richard L. Holcomb, Bureau of Public Affairs, State University of Iowa, Iowa City. 1948. Illus. 34 pp.*

This is the first in a series of publications designed to present the methods used in everyday police work. The material has been drawn from the experience of many police officers in scattered sections of the country. The author who is an Associate Professor of Public Affairs points out that the officer on the beat, doing the day-by-day job that is the backbone of law enforcement in the past, has had to depend almost entirely upon the experience and advice of older officers, and that supplementary methods of learning have long been needed. The booklet is well written, and is amusingly illustrated with a large number of cartoons that help to point up the text material.

Community Facilities for Public Housing

PUBLIC HOUSING IN THE NEIGHBORHOOD—*New York City Housing Authority, 122 E. 42nd St., New York 17, N. Y. May 1948. 27 pp.*

This is a report by a Citizens Advisory Committee on Community Activities appointed by the New York City Housing Authority to review and appraise the current policy of the Authority in this field and to make recommendations for the future. The Committee's members represented both private agencies and city departments concerned with planning for community progress and activities. The report analyzes specific projects. It points out that the City Housing Authority has a responsibility for securing maximum social return to the community from each project, and that this can be accomplished only through enlightened management policies and by making available facilities to meet the cultural, social and educational interests of the tenants. The committee recommends that all facilities provided for a project should be available not only to the tenants but to the community as a whole.

Stream Pollution Papers

PROCEEDINGS, LOCAL GOVERNMENT CONFERENCE ON STREAM POLLUTION CONTROL—*Institute of Local Government, University of Pittsburgh, Pittsburgh, Pa. June 1948. Mimeo. 81 pp.*

The conference reported on in these proceedings was developed and conducted in response to requests made by local government officials for a discussion of the progress and prospects for stream pollution control in Allegheny County and surrounding area. There is excellent discussion of what municipal authorities can do with regard to regional aspects of stream pollution, and as to the legal aspects of sanitary authority agreements. The question and answer period contains good information on sewage rental charges in Pennsylvania and on avoiding pollution of water from acid mine drainage.

Zoning for Business District Cars in Residential Areas

COMMERCIAL PARKING IN RESIDENTIAL AREAS, A TRANSITIONAL USE UNDER-ZONING—*Urban Land Institute Technical Bulletin No. 9, 1737 K St., N.W., Washington 6, D. C. June 1948. 8 pp.* $1.50.

This report discusses the practicability of permitting off street parking in areas zoned for higher use adjacent to the business district. It declares that often putting such land to productive use as off street parking would, under adequate safeguards, provide a transitional buffer area between the business district and adjacent residential development, exert a stabilizing influence, and discourage the zoning of an excessive amount of commercial land which might later be used for purposes other than parking. The report contains recommended criteria for drafting such permissive local ordinances, and also the results of a survey of city planning commissions of 172 cities having more than 50,000 population.

Metropolitan Government For San Francisco

THE PROBLEM OF GOVERNMENT IN THE SAN FRANCISCO BAY REGION—*By John C. Bollens. Bureau of Public Administration, University of California, Berkeley, Calif. 1948. 162 pp. $2.00 paper bound, $3.00 clothbound.*

This work represents another of the all-too-few milestones in the development of thought and research of the nature and solution of metropolitan area problems. The publication, though concerned primarily with identifying the problems and trends in the San Francisco area and recommending a method for alleviating regional problems, should be of considerable value to those concerned with metropolitan government and planning in other urban areas.

The recommendation is made that a large special district be created which would be given powers commensurate to the wide scope and serious nature of regional problems. Included on the governing board of not more than nine voting members would be both city councilmen or mayors from the area's municipalities, and a county supervisor. Small communities would have joint, alternating representatives.

Municipal Housing Authorities

HOW MANY EMPLOYEES ARE REQUIRED FOR EFFICIENT LOCAL AUTHORITY OPERATION?—*National Association of Housing Officials, 1313 East 60th St., Chicago, Ill. NAHO Publication No. N253. March 1948. 22 pp. 50 cents.*

NAHO reports the number of operating personnel in 36 representative local housing authorities, each servicing more than 3,000 dwelling units. The study distinguishes between personnel in management (average, 13.2 persons per 1,000 units) and personnel in maintenance (average, 30 persons per 1,000 uits), and also points out differences in the size of central-office staffs vs. project-office staffs.

Brief summaries of policies in tenant selection and relations, income re-examination, and employee relations are listed for each authority in the appendix. This pamphlet should be especially valuable to housing authorities that wish to examine their own operating efficiency in the light of other authorities' experiences.

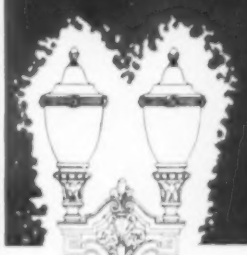
Facts on Housing

THE HOUSING SITUATION, THE FACTUAL BACKGROUND—*Office of the Administrator, Housing and Home Finance Agency, Washington 25, D. C. June 1948. 102 pp. Appendices.*

The material in this report was originally compiled at the request of the National Conference on Family Life which met at the White House, May 5 through 8, 1948. Because of the widespread interest in the material, it has been made available for general use in a modified form.

Post V-J Day developments are analyzed, including the April 1947 housing inventory, and authoritative estimates of housing requirements are compared and critically evaluated.

MICHIGAN'S CAPITAL BRIGHTENS



Daylight view of principal business street in Lansing, Michigan. Night view on facing page.

LANSING is to be congratulated upon the completion of its 25 year project of street light modernization. With the selection of King Ferronite Lighting Standards, city officials achieved their goal of a fully adequate light source for all classes of streets with uniform styling in varied heights of standards. Particularly helpful on tree-lined avenues were the 11½ foot 2500-lumen boulevard standards . . . a stock design that saved extensive tree trimming.

Sheffield, manufacturer of King Ferronite Lighting Standards, will furnish technical data and general information on street lighting equipment without obligation. Write for illustrated catalog, or consult any of the firms listed at the right below.

FRENCH DESIGN IN FERRONITE CHOSEN FOR UNIFORMITY

King Lighting Standards are designed in "families" to anticipate the need for varied intensities of illumination on business and residential streets. These photos show Lansing installations. 1. On a secondary business street or main traffic artery, the 15 foot standard carries a 6000-lumen lamp. 2. In this heavily-planted home neighborhood, 11½ foot standards with 2500-lumen lamps are used. 3. A boulevard standard 13 feet high with 4000-lumen lamp brightens heavy traffic residential street.

Hospital Administration Study

A STUDY OF HOSPITAL ADMINISTRATION—*By F. Hart and A. J. Waldegrave. Published under the auspices of the Institute of Public Administration. Stevens and Sons Limited, 1919 Chancery Lane, London, England.* 1948. 15 *shillings net.*

An excellent study of British hospitals and their management which has much applicability for hospital administration in the United States. The book seeks to direct attention to such features of hospital administration as involve matters of principle and methods of procedure between public and private hospitals. In the course of presenting objective facts about existing procedures, the book makes many recommendations for the improvement of hospital administration machinery.

Government and Education in Rural Areas

AMERICAN RURAL LIFE—*By David Edgar Lindstrom. The Ronald Press Company, 15 E. 26th St., New York 10, N. Y.* 1948. 385 *pp.* $4.

Written mainly for students and professional workers in rural sociology, this book throws much light on the problems of government and education in rural areas. It points out that the social problems which our increasingly complex civilization has imposed on rural life are just as important as are the problems of our cities, and correct solutions to them are just as necessary.

The book discusses township, village, and county government functions, and social organization in rural areas. It contains excellent illustrative and background material on the place of farmers in the national economy, and on the increasing interrelationships of urban-rural living.

Forthcoming Census Bureau Publications

CENSUS BUREAU PUBLICATIONS ON GOVERNMENTS —*Available upon request from Bureau of the Census, Department of Commerce, Washington, D. C., August* 1948.

This bulletin describes briefly each of the 18 reports on governmental finances and employment which the Census Bureau expects to issue in the fiscal year beginning July 1, 1948, and lists other recent publications of the Bureau regarding state and local governments. It represents another effort by this federal body to make its reports, publications and services better known so that they can be of greater local value and usefulness.

Racial Relations in Philadelpha

LAW ADMINISTRATION AND NEGRO-WHITE RELATIONS IN PHILADELPHIA, *A Study in Race Relations — By G. Gordon Brown. Bureau of Municipal Research, 311 South Juniper St., Philadelphia 7, Pa.* 1947. 183 *pp.*

A valuable municipal research bureau study which shows the extent to which interracial relationships are of concern to city government. The report points out that city government may heighten or alleviate racial tensions by the manner in which it administers its services, and also that the difficulties and costs of city government may be materially increased by interracial tensions and disturbances. The study is based upon interviews with members of the police force, officials, and with members of both white and Negro populations in Philadelphia. The attitudes reported concerning the police handling of racial incidents are especially revealing.

The study recommends that the police develop a course of training in race relations, that a systematic means of estimating changes in race attitudes throughout the city be adopted and utilized by law-enforcement agencies, and that a permanent civic public relations committee be established.

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"GUNITE" SAVES SEWER IN CANADA

The pictures tell the story. A 6-months-old concrete pipe sewer line at Owen Sound, Ontario, was found to be failing under earth load. The tests shown above were made, and convinced the city officials that a reinforced "GUNITE" lining would correct the trouble, and we did the job in 1934. The sewer was 36" and 48" diameters and one-half mile long.

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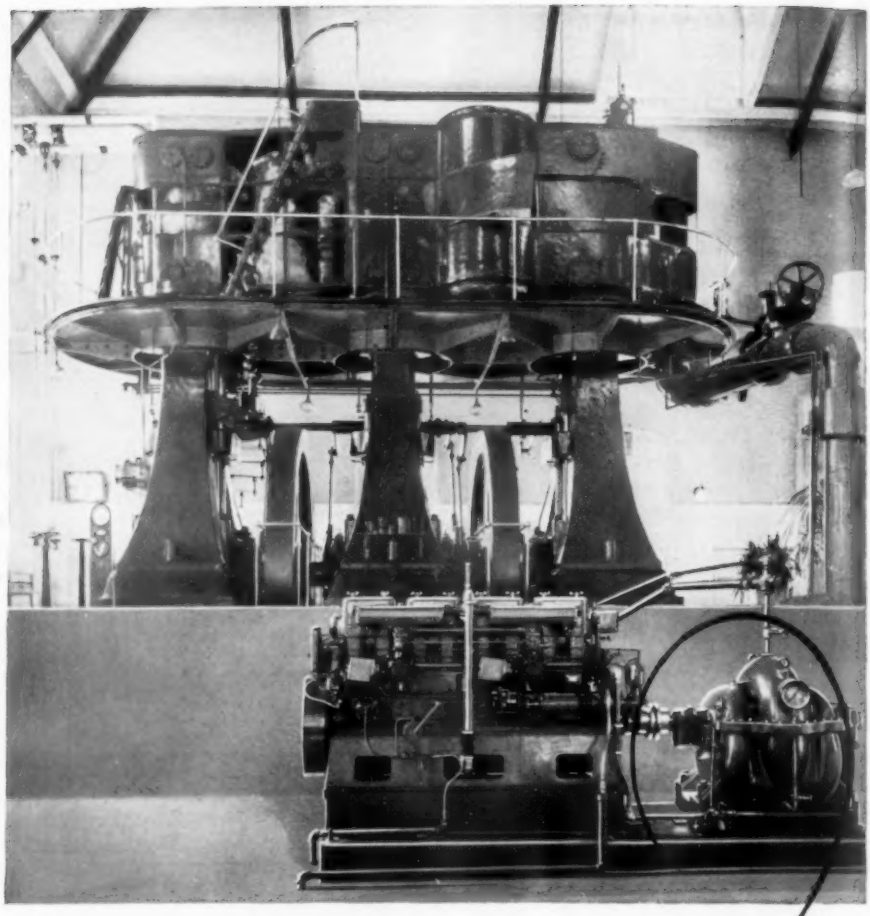

New
De Laval Centrifugal Pump

REPLACES OBSOLETE GIANT

as Atlantic City modernizes

Replacement of the old triple-expansion pumping engine, shown in the background with the new De Laval centrifugal pump in the foreground, is part of the modernization program for Atlantic City. This station now employs a total of seven De Laval centrifugal pumps having a combined capacity of more than 73 million gallons daily. Four of these are motor-driven pumps employed for practically continuous operation while three are gasoline engine-driven pumps employed for stand-by service. All seven units are equipped with self-priming systems so that they can pick up the load upon a minute's notice.

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Planning and Housing Reports

Arlington, Va.—Study on Planning and Zoning for Arlington County. Chamber of Commerce. May, 1948. Maps. Questionnaire. Mimeo. 30 pp.

Brookhaven, N. Y.—Rules and Regulations for The Subdivision of Land, A Part of the Master Plan. Brookhaven Planning Board. June 1948. 23 pp.

New York, N. Y.—Housing (With Particular Reference to New York City). An Address by Frederick H. Ecker, Chairman of the Board. Metropolitan Life Insurance Company. Feb. 1948. 15 pp.

Oregon—Procedure for Establishing County Planning and Zoning. Bureau of Municipal Research and Service, University of Oregon. 1947. Mimeo. 11 pp.

Richmond, Va.—Manual of the Richmond City Plan. City Planning Commission. 1947. Charts. Maps. Illus. 32 pp.

Schenectady, N. Y.—A Preliminary Report on Transit Facilities in Schenectady, New York. City Planning Commission. August, 1947. Tables. Maps. Mimeo. 44 pp.

United States—Guide to Study Collection—Housing and Planning. Prepared by the Housing and Home Finance Agency at the request of the Department of the Army. Feb. 1948. Mimeo. Unpaged.

Winnipeg, Manitoba, Can.—Annual Report, Metropolitan Plan Greater Winnipeg. Metropolitan Planning Committee and Winnipeg Town Planning Commission. 1948. Charts. Tables. Maps. Mimeo. 36 pp.

Other Reports Received

Atlanta, Ga.—Annual Report, 1947. Office of Comptroller. Tables. 88 pp.

Cincinnati, Ohio—Annual Report, 1947. Office of the City Manager. Tables. Maps. Illus. 80 pp.

Connecticut—Annual Report of the Public Expenditure Council, 1948. 21 Lewis St., Hartford, Conn. Tables. 24 pp.

Greenwich, Conn.—Inside Greenwich, Summary of the Annual Report of 1947. Published by the Board of Estimate and Taxation, Greenwich, Conn. 1948. Tables. Map. Illus. 94 pp.

Irvington, N. J.—Annual Report 1947. Municipal Building, Civic Square. Illus. Tables. 81 pp.

Los Angeles, Calif.—Favored Industries in Los Angeles. Published by the Haynes Foundation, 2324 South Figueroa Street, Los Angeles. February 1948. Tables. 25 pp.

Milwaukee County, Wis.—Financial Summary 1947. Compiled by the County Clerk and the County Auditor. Illus. Tables. 80 pp.

Montclair, N. J.—1947 Activities. Department of Public Works, Montclair. Illus. 4 pp.

New Haven, Conn.—Annual Report 1947. Department of Health. City of New Haven. Charts. Tables. 40 pp.

New York, N. Y.—Tax Policy. Tax Institute, Inc., 150 Nassau Street, New York 7. April 1947. 12 pp. $0.25.

Olympia, Wash.—Statement of Taxes Due in 1948. Prepared by Division of Municipal Corporations, Olympia. Tables. Charts. 12 pp.

Pittsburgh, Pa.—Four County Industrial Inventory. Allegheny Conference on Community Development. 508 Magee Building. Pittsburgh 22. June 1948. Mimeo. Tables. Charts. Unpaged.

Pittsburgh, Pa.—Report on the Proposed Collection and Treatment of Municipal Sewage and Industrial Wastes. Allegheny County Sanitary Authority, 502 City-County Building, Pittsburgh. Tables. Maps. Charts. 80 pp.

Portland, Ore.—Annual Report 1947. Civil Service Board, Municipal Auditorium, S. W. Clay and S. W. 3rd Avenue, Portland. Mimeo. Tables. 15 pp.

Racine, Wis.—Sewage and Disposal Plant and System. Annual Report 1947. By Superintendent Thomas T. Hay, City Hall, Racine. Mimeo. Charts. Tables. 22 pp.

Richmond, Va.—Salaries and Working Conditions of Policemen in various Virginia Police Departments. Report No. 309. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Mimeo. Tables. Charts. 21 pp. $0.75.

Seattle, Wash.—Retirement System for Municipal Employees in Cities of Washington State. Report No. 73. Bureau of Governmental Research and Services, University of Washington, Seattle, in cooperation with Association of Washington Cities. March 1948. Mimeo. Tables. 21 pp.

Springfield, Ill.—Constitutional Revision in Illinois. December 1947. Published by Legislative Council of Illinois, Springfield. Mimeo. Tables. 41 pp.

Taunton, Mass.—Annual Report to 1948. Published by the Mayor J. F. Parker, Taunton. Illus. Tables. Charts. 41 pp.

United States—Differences between Rural and Urban Levels of Living. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C. Mimeo. Tables. Graphs. 12 pp.

United States—Compendium of City Government Finances in 1946. United States Department of Commerce, Bureau of the Census, Washington, D. C. Mimeo. Tables. Graphs. 118 pp.

Waverly, Iowa—Annual Report April 1, 1947—April 1, 1948. Municipal Electric and Water. Published by the Councilmen of the City of Waverly. Illus. Tables.

Another **"Warren Pipe"** line soon to be paying dividends to its owners through years of carefree service — buried and in service, it's the "forgotten man" of your water system, on duty 24 hours each day, year after year.

Warren cast iron pipe and fittings can be supplied in sizes 2" to 84" with all types of joints and in accordance with standard specifications.

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1	CARRYABILITY	√
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News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Raising Money for Resuscitation Equipment

Pictured here is a set of display panels in use in a department-store window during a drive to raise funds for the purchase of a resuscitator for the local fire department.

A set of attention-getting display panels for use in stimulating public donations for the purchase of municipal resuscitation equipment is now being offered without charge by the manufacturers of E & J resuscitators.

The displays are placed in store windows, hotel and theater lobbies, and similar locations. They dramatize the "community life insurance" provided by adequate resuscitation equipment, and actual photographs on the display show how the mechanism is used to revive victims of drowning, smoke suffocation, acute asthmatic attacks, carbon monoxide poisoning, and other types of asphyxia.

Early reports indicate great success in raising funds through the use of these displays, particularly by fire departments and rescue services seeking additional equipment not allocated for by their budgets. In some cases local campaigns are tied in with donations made by cooperating merchants to help further the fund-raising work.

Full details are available from the E & J Mfg. Co., Glendale 1, Calif., or any E & J dealer in the U. S.

Water Works Convention In Galveston, Texas

The following members of the Water and Sewage Works Mfrs. Assn., Inc., 170 Broadway, New York 7, N. Y., have reserved exhibit space at the convention to be held by the Southwest Section at the Buccaneer Hotel, Galveston, Texas, October 10 to 13:

Atlas Mineral Products Co.
American Cast Iron Pipe Co.
Badger Meter Mfg. Co.
James B. Clow & Sons
Calgon, Inc.
Carver-Stimpson Pipe Cleaning Co.
Chicago Bridge & Iron Co.
Dorr Co., Inc.
Flexible Underground Pipe Cleaning Co.
Glauber Brass Mfg. Co.
Hays Mfg. Co.
Hersey Mfg. Co.
Homelite Corp.
Johns-Manville
Layne & Bowler, Inc.
McWane Cast Iron Pipe Co.
Mueller Co.
Neptune Meter Co.
Pitometer Co.
Paddock Engineering Co. of Texas
Pittsburgh Equitable Meter Div. of the Rockwell Mfg. Co.
Pittsburgh-Des Moines Steel Co.
Rensselaer Valve Co.
R. W. Sparling
U. S. Pipe and Foundry Co.
Wallace & Tiernan Co., Inc.
Worthington-Gamon Meter Co.
Well Machinery & Supply Co., Inc.
R. D. Wood Co.

Arthur W. Buttenheim Snare Corp. Chairman

Arthur W. Buttenheim has been elected chairman of the Board of Directors of Frederick Snare Corp., 233 Broadway, New York, N. Y. George P. Seeley will succeed Mr. Buttenheim as president. Harry O. Ware will succeed the late Hugh Peters as secretary-treasurer.

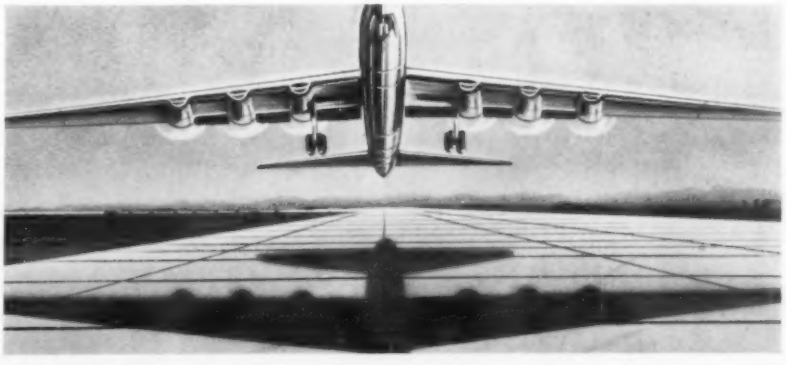
Mr. Buttenheim has served as President of the Corporation for the past 21 years. He will continue to be active in the supervision of the corporation's numerous engineering and construction contracts. Mr. Seeley, who has been with the Snare Corporation for 39 years, has spent much of his time in Cuba, Chile, Peru, and Colombia where, as vice-president of the company, he had charge of the company's Latin American contracts.

The Frederick Snare Corporation, contracting engineers, has built such structures as the Whitestone Bridge in the United States, and is at present the contractor for the enlargement of La Guaira Harbor in Venezuela, as well as on numerous other projects throughout North and South America.

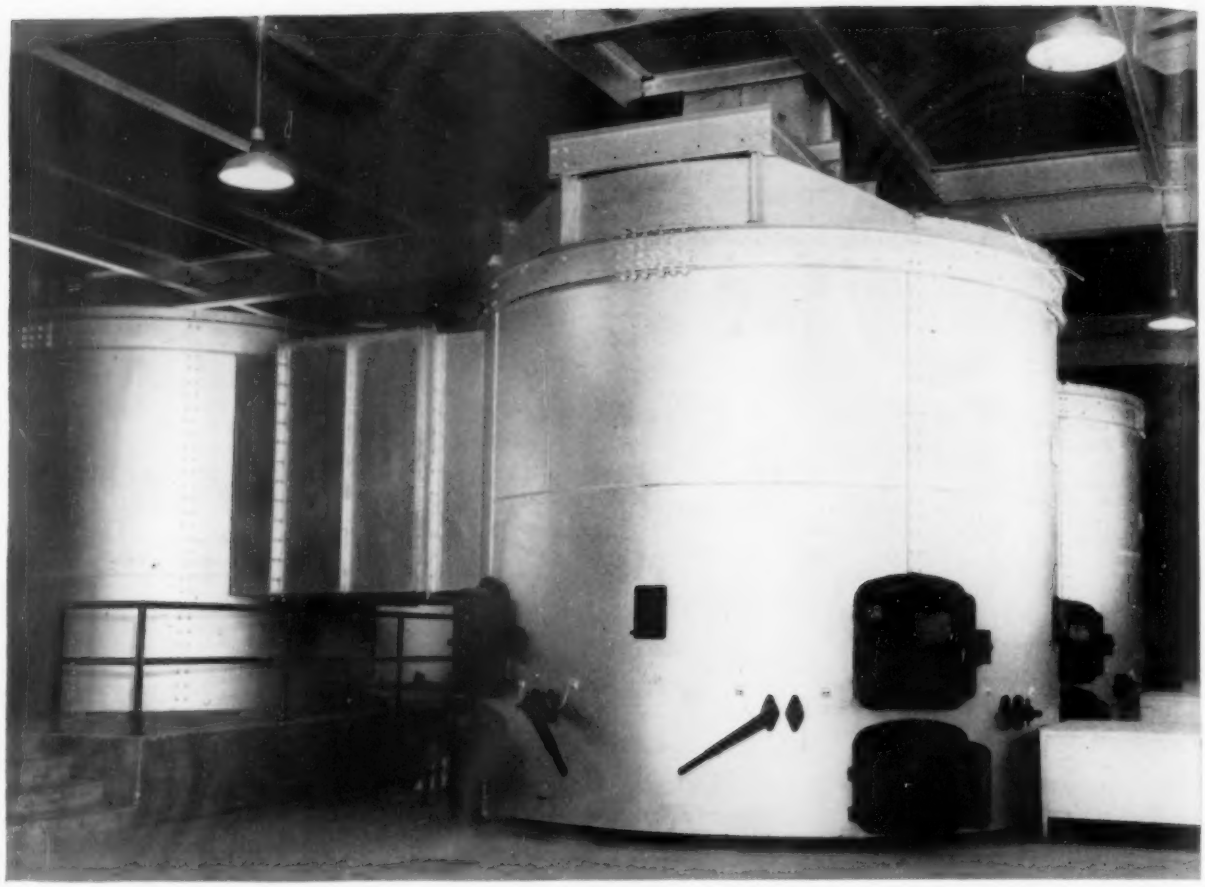
10,000-Foot Concrete Runway At Patterson Field Completed

The job of building a 10,000-foot concrete runway at Patterson Field, Dayton, Ohio, was recently completed. Dummy joints were used instead of expansion joints because of the thickness of the slab—25 inches—and the dummy and longitudinal joints were sealed with Careylastic sealing compound.

Manufactured by the Philip Carey Mfg. Co., Dept. 18, Cincinnati 15, Ohio, Careylastic is a mixture of rubbers, asphalts, and suitable plasticizers, retaining its plastic and elastic properties at winter and summer temperatures.



This sketch shows a new B-36 bomber taking off from the runway. The runway sealing is of Careylastic joint sealing compound.



Winnipeg, Canada, now operating 3 Modern 100 ton Nichols Monohearth Mechanically Stoked Incinerators

"The 3-furnace test on February 13th was primarily to determine compliance with the guarantee that only two men are required on the stoking floor when operating three furnaces at guaranteed capacity. This requirement was fulfilled."—"The mechanical operation of all items of the furnaces and appurtenances was satisfactory through the test."*

**From official test report by*
Greeley & Hansen, Consulting Engineers, Chicago.

Nichols ENGINEERING & RESEARCH CORPORATION

60 WALL TOWER, NEW YORK 5, N. Y. • *In Canada: 1477 Sherbrooke St. West, Montreal 25*

Kitchen Garbage Grinders Installed in Every Home In Housing Development

One hundred thirty-seven Waste King pulverators, manufactured by the Given Mfg. Co., 3855 Santa Fe Ave., Los Angeles 11, Calif., are being installed at the Hollywood Riviera development. Examining the kitchen garbage grinder are, left to right: Phil Grosser, of Gillman & Gillman, Lynwood Plumbing, contractors; Lauren Cherry, vice-president, and L. Blake Baldwin, president, Hollywood Riviera Corp.; David W. Celfelt, Chief Area Inspector, and W. S. Davidson, Sanitary Inspector for the Los Angeles County Health Department of the Bureau of Sanitation.

Eagle Signal Gives Consultation Service

The Eagle Signal Corp., Moline, Ill., has instituted a personalized traffic-engineering consultant service free to all cities in Indiana. William H. Bilby will be in charge of this phase of the work of the James H. Drew Corp., of Indianapolis, Ind., agents for Eagle Signal.

McHugh and McCrosky Announce Consulting Service Partnership

Establishment of a consulting service to private and public agencies for community and regional development problems was announced August 15 by Francis Dodd McHugh, registered architect, and Theodore T. McCrosky, licensed professional engineer.

Both the partners were formerly division heads on the staff of the City Planning Commission of the City of New York. For the past two years Mr. McHugh has had his own office as a planning consultant. His clients have included New York Regional Plan Association, the United Nations Headquarters Commission on selection of sites in the New York area and in California, Morningside Heights Inc., and the Borough of Princeton, N. J. Mr. McCrosky, after two years as executive director of the Chicago Plan Commission, and three years in the U. S. Navy, has been executive director of the Greater Boston Development Committee. He has arranged for a change of status in Boston to that of consultant, so as to join forces with Mr. McHugh.

Services that the new partnership is prepared to render include consultation on community, city, and regional surveys, plans and programs; industrial locations and shopping centers; zoning and subdivision regulations; traffic and parking problems; capital budgets and improvement programs; planning administration; organization of civic development and action committees; programs and plans for effective occupancy of land in urban development and redevelopment, and investigations and reports.

Headquarters of the firm, McHugh and McCrosky, are at 23 East 26th Street, New York 10, N. Y.

another **"SNAP"—**

FOR "FLEXIBLE" TOOLS AND EXPERIENCE

Actual snapshot shows 12" "Flexible" pressure line scraper at the end of its run. Sizes of pipe cleaned included 6", 8", 12", 16" and 20" lines.

Another "snap" for the Album of "Flexible" Tools and Experience shows this run in the 12" water main on Jersey Avenue, New Brunswick, N. J. Work was carried through to completion in fast time, at low cost and with a minimum of inconvenience to water users. As in most "Flexible" operations, this New Brunswick job was taken on a 100 per cent contract basis. Depending, however, upon customer option, "Flexible" also contracts tools and supervision, rents tools, or makes outright tool sales for all line cleaning requirements.

YOUR pipe cleaning needs are important. It will pay you to check "Flexible" today on any basis — equipment, methods, cost.

FLEXIBLE UNDERGROUND PIPE CLEANING CO.

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P. O. Box 165 Atlanta
2011 Central Ave. Memphis, Tenn.
801 E. Excelsior Blvd. Hopkins, Minn.
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P. O. Box 694 Pittsburgh
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Sure, he's one of the family!

He's MR. SOFT WATER!

For Dad: SOFT WATER cuts costs, speeds production and increases product quality at the plant! The tremendous industrial economy of soft water is a *big inducement* for new industries to locate in your city!

For Mom: SOFT WATER saves 50% on soap—makes washing easier—lightens housework—reduces plumbing repairs, and cuts fuel bills. No wonder every family welcomes SOFT WATER!

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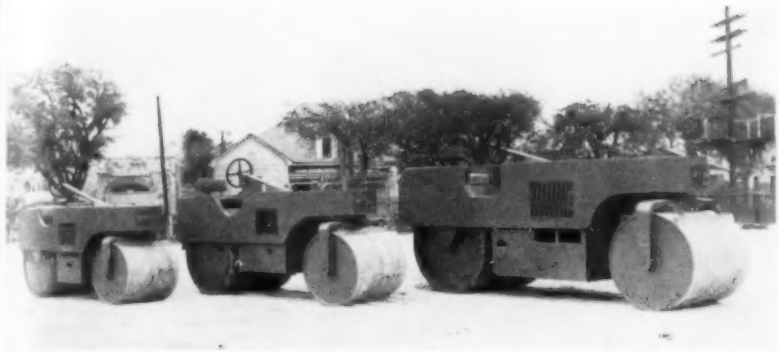
WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

The Three Bears



The three Pierce Bear Rollers, manufactured by the Lewis Mfg. Co., 415 Hoefgen Ave, Post Office Box 500, San Antonio 6, Texas, are, from the left, a 2½- to 3-ton Baby Bear, a 4- to 5-ton Middle-Size Bear, and on the right, the 6- to 9-ton Big Bear. All three of the tandems are of variable weight (the desired weight is attained by adding water to the rolls).

The Baby Bear comes equipped with an electrical starting system and gasoline engine. The two larger models also have the electrical starting system as standard equipment and can be furnished with either gasoline or diesel power.

One of the features of the models is the extremely high curb clearance, which permits operation between forms of obstructions. Hand tamping is almost eliminated, since it is possible to roll very close to building or wall surfaces.

Wolf Appointed By Buffalo-Springfield

Ralph L. Wolf has been appointed Central District Sales Manager by the Buffalo-Springfield Roller Co., of Springfield, Ohio. Mr. Wolf will cover 17 central and southern states.

Ralph L. Wolf

Mr. Wolf's previous experience includes association with the Philip Carey Co, the Department of Building Inspection for Columbus, Ohio, and the position of Executive Secretary of the Ohio Department of Highways.

General Detroit Appointments

E. A. Warren, formerly vice-president in charge of sales for the General Detroit Corp., 2270 East Jefferson Ave., Detroit 7, Mich., has been appointed executive vice-president. His jurisdiction will include the policies of the fire extinguisher, fire apparatus, fire hose, and industrial divisions. A. B. Seigfreid, formerly sales manager of the fire-truck division, assumes the position of vice-president in charge of manufacturing, and Preston W. Wolf, formerly assistant to the vice-president, succeeds to the post of assistant general sales manager.

Other appointments include: M. S. Shoppert to the position of assistant sales manager for fire extinguishers; H. A. Thompson, assistant sales manager for apparatus; R. O. Beuschline, assistant sales manager for fire hose and the industrial division; Roy H. Morrison, central divisional manager; Gail M. Rutledge, midwestern divisional manager.

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MANHOLE COVERS CAN BE SILENCED
EASILY, EFFECTIVELY AND SURELY WITH
SIDU'S SOLID RUBBER CUSHION

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The Sidu Company molds and cures solid, hard rubber to a radius designed to fit the average manhole seat. This rubber cushion is easier to apply as it requires no fitting and tamping. . . No messy mastics or sticky oils.

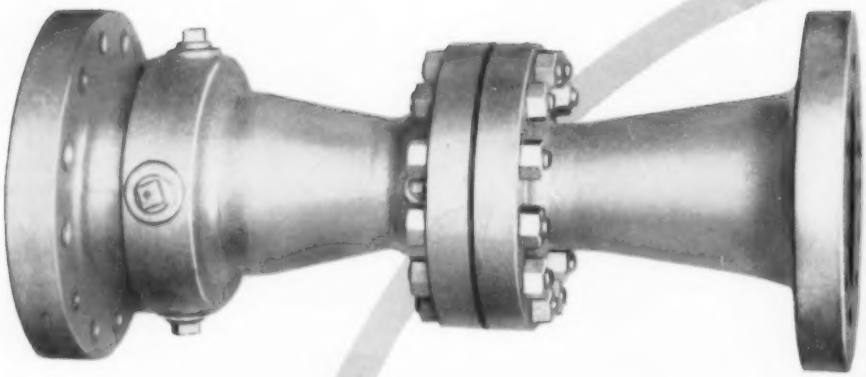
Sidu's rubber cushion will outwear and outlast comparable products and is more economical too. Savings up to 50% over other cushions. Price 15c per foot . . . less on quantity orders. Price subject to change without notice.

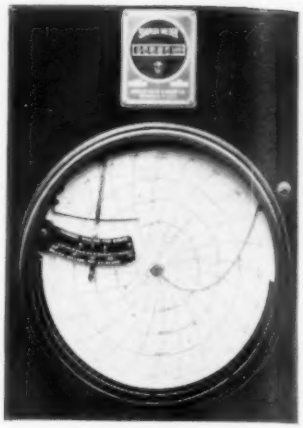
NO CRIMPING • NO PACKING
NO HAND FORMING

THE CURVE DOES IT!
SATISFACTION GUARANTEED

SIDU Co. BOX 3537
LONG BEACH • CALIFORNIA

Manufactured by the originators of the famous WAYNE BALL . . . the proven sewer cleaner





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Simplex Venturi Tubes provide stable and dependable coefficient data over wide velocity ranges. When used with almost frictionless Simplex Meters a remarkable tank to totalizer efficiency results. An added advantage is the low head loss occasioned by Venturi Tubes when compared with other forms of primary devices.

Simple in design, responsive to slightest differential pressure changes, Simplex Venturi Meters give trouble free operation with minimum maintenance costs.

Write for illustrated bulletins from the Simplex Valve & Meter Company, 6789 Upland St., Philadelphia 42, Pa.

SIMPLEX

VALVE AND METER COMPANY

Four Hundred Copies Per Hour from 18-Inch-Wide Originals

A new high-speed continuous photocopy machine that makes four hundred 8½-by-11-inch copies per hour, and is able to copy directly from originals up to 18 inches wide—any length—is announced by the American Photocopy Equipment Co., 2849 N. Clark St., Chicago, Ill.

The CP-18 Continuous Copier works directly from original matter—printed, typed, or written, or drawn—and makes 400 copies per hour.

Developed primarily for large offices of municipal institutions and government departments, the new machine makes it possible to have permanent, error-proof, low-cost, legally accepted copies of records, plans, drawings, blueprints, office forms, photos, charts, diagrams, letters, statements, orders, invoices or other important papers.

Called the CP-18 Apeco Continuous Copier the new machine copies from any original containing matter that is written, printed, typed, drawn, blueprinted, or photographed. Because it operates on a simplified photographic principle, it needs no masters or stencils, or new tracings, eliminating the need for expensive copying by draftsmen and typists and preventing errors in copying.

A continuous automatic mechanism and a simplified control panel make operation simple. An original and a piece of photocopy paper are fed together into an opening. The continuous canvas belt and revolving glass cylinder keep them under constant, uniform pressure, prevent slipping, and assure clear, readable prints.

The new model supplements a line which includes the large Apeco Professional Model for making copies up to 42 inches wide, any length, and the Apeco Photo-exact Copier for making copies up to 18 by 22 inches.

MANAGER PUBLIC UTILITY WANTED

As Assistant Manager in operation of group of water supply properties on Long Island with gross annual revenues of about $1,000,000. Must be experienced and have full knowledge of construction, operation and maintenance of water works facilities. Must be versed in public relations work. Opportunity for man qualified to succeed to manager's job after demonstration of capacity to handle assignment.

Interview arranged on basis of letter stating qualifications, educational background and salary desired.

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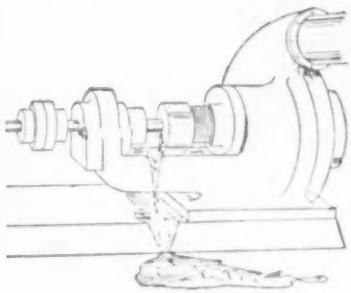
861 ADDISON ROAD • • • CLEVELAND 14, OHIO

Troubled With Leaky Stuffing Boxes on Your Pumps?



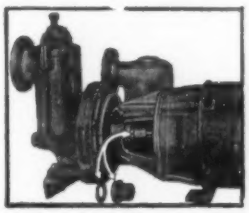
Try

SYNTRON

"Replacement"

SHAFT SEALS

the next time!



Self-lubricating "packaged" units (no conglomeration of parts to fuss with)—easy to install, just slide over shaft and secure.

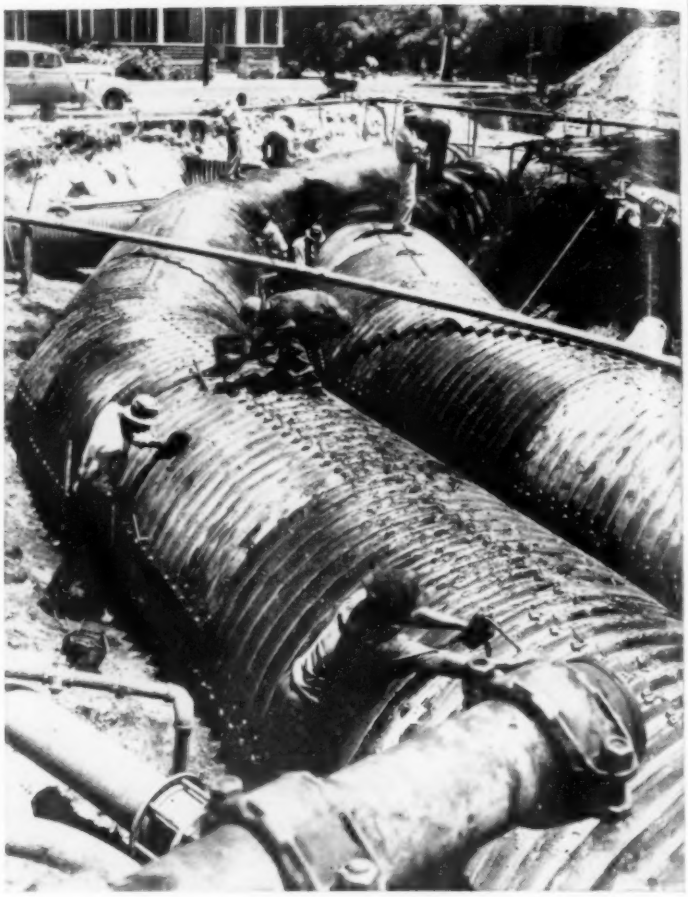
For handling water, air, gases, petroleum products, etc.

Withstand temperatures from —10° F. to +200° F., and pressures to 200 psi.

Write for folder.

SYNTRON CO.
430 Lexington, Homer City, Pa.

your drainage dollar can be



s-t-r-e-t-c-h-e-d

Costs are high and budgets won't stretch; yet you may be pleasantly surprised to see how far you can make those dollars go with Armco Drainage Products. At the same time you can stick to your determination of using the very best materials in the interest of public safety and economy.

Many cities have found ARMCO Corrugated Metal Products an especially wise choice when faced with the problem of building sewers, culverts, stream enclosures, bridges and other drainage structures at reasonable cost. This is why:

All ARMCO Corrugated Metal Structures have a high strength to weight ratio. Transportation costs are low. They are easily handled and installed by unskilled workmen. Less time is needed to finish the job. Labor costs are low.

Material costs are low because you choose exactly what you need in a wide range of sizes from 6-inch round pipe to a 24-foot MULTI-PLATE Arch. For severe corrosion there is ASBESTOS-BONDED Pipe, while a PAVED-INVERT will guard against erosion. And either standard Corrugated PIPE-ARCH or MULTI-PLATE PIPE-ARCH is just the thing for limited headroom.

These are some of the time- and money-saving reasons why Armco Products help stretch your drainage dollar. Talk over that next problem with the ARMCO Engineer or write us for complete information. Armco Drainage & Metal Products, Inc., 1605 Curtis Street, Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

ARMCO

ARMCO DRAINAGE PRODUCTS

Foxboro Enlarges San Francisco Quarters

The Foxboro Co., Foxboro, Mass., has settled in its enlarged quarters at 266 Fremont St., San Francisco. Manufacturers of industrial instruments for measurement and control of process variables, such as temperature, pressure, humidity, and flow, the company's offices, pictured here, provide repair service and also contain a sales office, a warehouse and a branch factory.

International Salt Appoints Green

Edson K. Green has been appointed general sales manager of the International Salt Co., Inc, Scranton, Pa.

Edson K. Green

Mr. Green has been assistant sales manager since 1945 and prior to that time served as the company's New York City district manager. He has been with International Salt since 1929.

Armco Purchases Jackson Tube

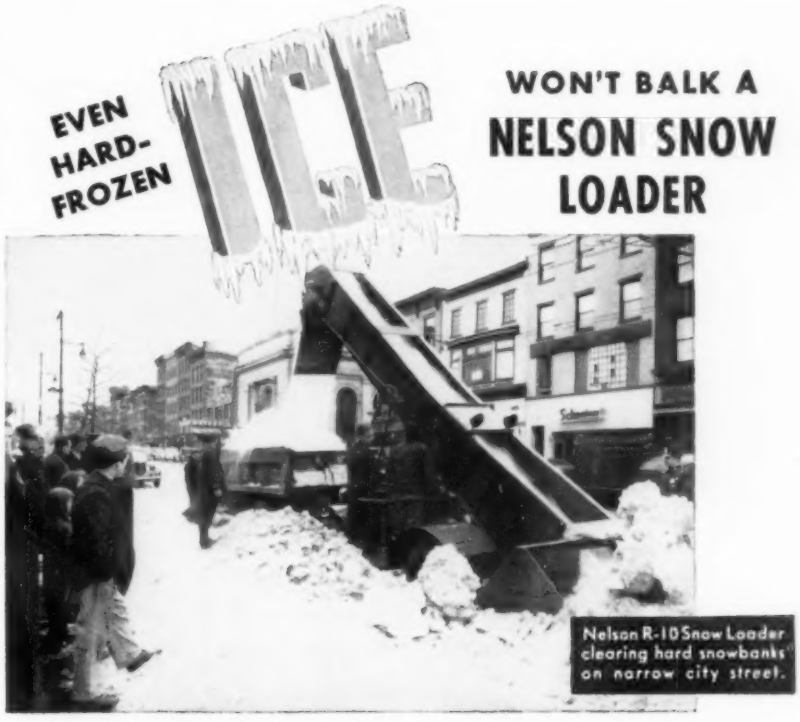
The Armco Drainage & Metal Products, Inc., 3985 Curtis St., Middletown, Ohio, has contracted to purchase the assets of the Jackson Tube Co., Inc., Piqua, Ohio, which will be operated as the Tubing Division of Armco, manufacturing mechanical tubing in sizes ranging from $\frac{3}{8}$ inch to 3 inches.

Fulton Bag and Cotton Mills Buys Los Angeles Plant

The Fulton Bag & Cotton Mills, with headquarters in Atlanta, Ga., announces the purchase of the bag business of West Coast Bags, Inc., of Los Angeles, Calif. At the present time Fulton operates factories in Atlanta, New Orleans, St. Louis, Dallas, Kansas City, Minneapolis, and Denver.

The tremendous growth in population, agriculture, and industry on the West Coast made it important that Fulton provide better service facilities for its growing group of customers in the Coast area.

Mr. Jack C. Baldwin, who has been president and manager of West Coast Bags, Inc., will continue as manager of the Los Angeles plant, and the organization will be maintained largely with its present personnel. Mr. Otis G. West, who has been with the company for 30 years, is being transferred to the Los Angeles plant as an assistant to Mr. Baldwin. The Los Angeles plant will continue to serve the industries on the Coast, and a continuity of operation will be maintained. Present contracts of customers of West Coast Bags, Inc., will be executed by Fulton.


EVEN HARD-FROZEN ICE
WON'T BALK A
NELSON SNOW LOADER
Nelson R-10 Snow Loader clearing hard snowbanks on narrow city street.

. . . IT PICKS BEFORE IT SHOVELS!

Ice storms, quick freeze-ups, hardened snowbanks — these snow-clearance headaches are routine, short-order jobs for a Nelson Snow Loader. That's because a Nelson is no mere "conveyor." *It picks before it shovels.* Steel-toothed, renewable blades dig deep and close, quickly get rid of frozen snow.

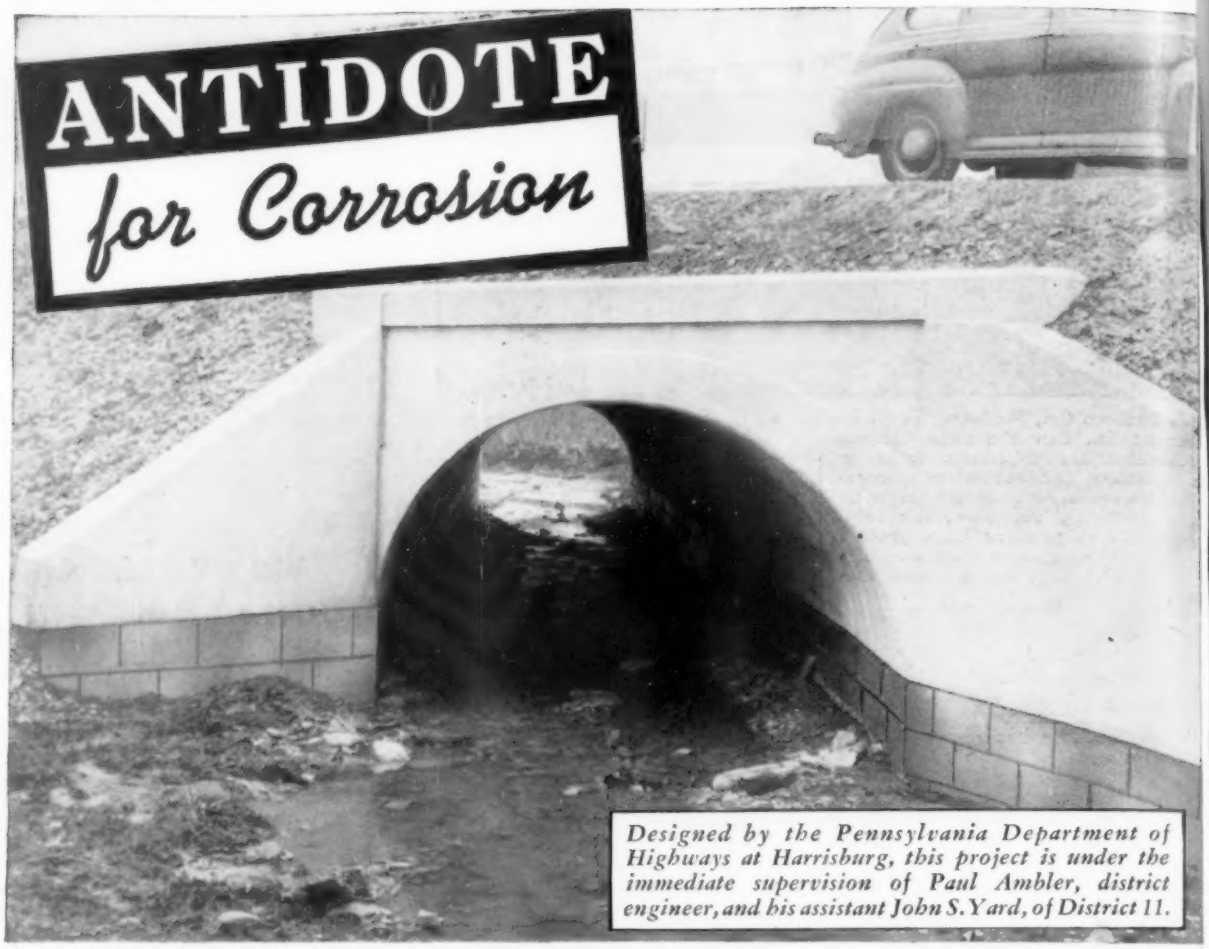
A Nelson is easy on pavement; operator has close control of depth of cut. Hydraulic hoist and a Nelson's agility in traffic are other features you'll like.

And a Nelson is useful all year 'round. It handles coal or cinders without a change. A Nelson bucket boom, separately available, speedily converts it into a rugged loader for road or pit, handling earth, sand or broken stone.

Get the facts and costs on the Nelson—and by all means see it perform—before you invest in a snow loader. Thrifty "Utility" and big "Heavy-Duty" sizes. Write for new bulletin.

NELSON
N. P. NELSON IRON WORKS, INC.
CLIFTON, NEW JERSEY · *Truck Loaders Since 1917*

ANTIDOTE for Corrosion



Designed by the Pennsylvania Department of Highways at Harrisburg, this project is under the immediate supervision of Paul Ambler, district engineer, and his assistant John S. Yard, of District 11.

WHEN relocating a section of the William Penn Highway, U. S. Route 22, east of Pittsburgh, Pennsylvania, engineers ran into an area where the streams contained a high concentration of deteriorating acid. Since the project called for eleven culvert structures ranging from 100 to 250 feet in length and ten to forty feet in span, piers and abutments for a 5-span bridge, and approximately 20,000 linear feet of underdrain, this acid presented a serious problem.

Solution? Every single inch of underdrain, mains and masonry that came in contact with the water was constructed of, or lined with acid-resisting *vitrified clay.*

On any installation where resistance to destructive elements is necessary, it pays to specify Clay!

For specific information on your Clay Pipe problem, write the details to the office nearest you.

NATIONAL CLAY PIPE MANUFACTURERS, INC.

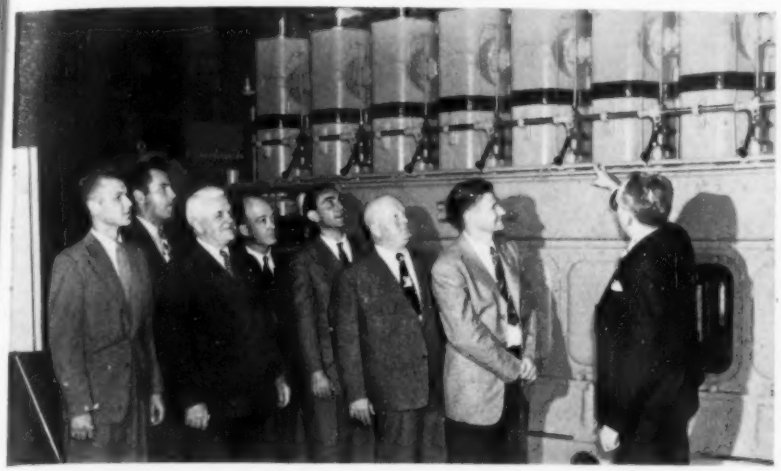
1105 Huntington Bank Bldg., Columbus 15, Ohio
703 Ninth and Hill Bldg., Los Angeles 15, Calif.
522 First National Bank Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.

Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

C-248-2

Enterprise Diesel Exhibits at Industrial Exposition



Al Cronman, of the Enterprise Engine & Foundry Co., 18th and Florida Streets, San Francisco 10, Calif., points out salient features of the Model DSG-18, a 43,000-pound, 4-cycle generator set rated at 585 hp at 500 rpm, built for continuous or stand-by duty. The machine was exhibited at the first Bay Area Industrial exposition, held in the San Francisco Auditorium.

Neptune Opens New Kansas City Office

The Kansas City office of the Neptune Meter Co., 50 West 50th St., New York 20, N. Y., has moved to its new building at 25 West 15th St., North Kansas City 16, Mo.

National Supply Elects McKinney

Arthur W. McKinney, vice-president and general manager of sales of The National Supply Co., Springfield, Ohio, has been elected executive vice-president.

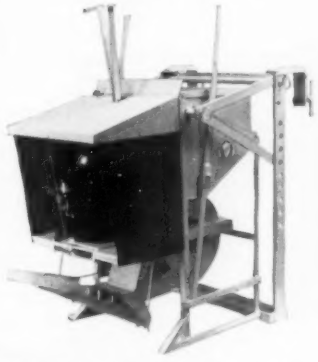
CIRCUL-AIR
FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

ICE & SNOW
CONTROL



TARCO "Scotchman"
SPREADER

Do it fast—easy—cheap with clear chemicals. Theoretical quantities applied. Attach to any truck or pick-up in three minutes. Use bulk or bagged material. Perfect salt pattern, no waste, ordinarily saves 50% or more. Full width, or right, or left; complete control. Vital parts stainless steel.

TARRANT MFG., CO.
East Ave. Saratoga Spa., N. Y.

STOP WATER HAMMER

THE
WILLIAMS-HAGER
flanged SILENT CHECK
VALVE

The Williams-Hager Flanged Silent Check Valve is available for every service . . . bodies of Iron, Semi-Steel, Cast Steel, Government Bronze, Stainless Steel or Monel Metal . . . fitted with seats and discs of either Government Bronze, Stainless Steel or Monel. Standard sizes from 1 inch to 20 inches. *Write for new technical bulletin.*

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3013 PENNSYLVANIA AVE. · PITTSBURGH (12), PA.

Blue Ribbon Winners

Tune in Henry J. Taylor, "Your Land and Mine," Mutual Network, Monday and Friday.

GMC "450" SERIES

"Army Workhorse" Power

The same famous "270" engine . . . with commercial-use adaptations . . . that powered nearly 600,000 GMC military trucks on battlefronts all over the world.

Stronger, Sturdier Chassis

Wide, deep, thick frames that are comparable in strength to those of many heavy duty trucks . . . big clutches, brakes, springs and transmissions . . . frame-mounted, angle-braced bumper bar grilles.

All New Post War Cab

All-steel welded and 3-point mounted . . . with greatly increased roominess, 22% more visibility, adjustable seat with 73 individually wrapped springs, built-in fresh air ventilation system, a dozen other comfort and convenience features.

Rugged, Modern Good Looks

Styled to Stand Out . . . with smartly streamlined hood and fenders, smoothly contoured cabs, and gleaming chrome grilles . . . all designed and engineered to stand up under the toughest truck use.

GMC 450 series models . . . conventional and cab-over-engine . . . are the blue ribbon winners among the "big jobs" in the medium duty truck field.

They're Big . . . built to handle gross weights up to 37,000 pounds. *They're Strong* . . . with frames of 10.1 section modulus . . . strongest in their price class. *They're Better Built* . . . with such heavy duty big truck features as hypoid rear axles, full pressure engine lubrication, Turbo-Top pistons, radiator expansion tank, Ball-Bearing Steering.

Beyond this, GMC 450s give you the peacetime counterpart of the war-famed "Army Workhorse" engine . . . rugged good looks . . . outstanding cab comfort. Before you buy any "big" truck, see these extra big, extra value medium duty GMCs.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK OF VALUE

GMC TRUCKS

GASOLINE • DIESEL

DDT Fog Helps Players Concentrate on Balls Instead of Bugs

Willie Ogg, noted golfing supervisor of the Albany Country Club in New York, watches the new Todd fog machine, manufactured by the Todd Shipyards Co., 81-16 45th Ave., Elmhurst, Queens, N. Y., brushing off Japanese beetles and other winged pests. The 300-acre club is one of the first to take out pest insurance.

Ensinger Elected Vice-President of Remington-Rand

S. H. Ensinger, director of advertising and publicity of Remington Rand, Inc, 315 Fourth Ave., New York 10, N. Y., for the past 17 years, was elected a vice-president of the corporation, July 29, 1948.

S. H. Ensinger

Mr. Ensinger joined Rand Kardex Bureau in 1926, a year prior to the series of mergers of prominent office-equipment companies which culminated in the formation of Remington Rand, Inc. He became advertising manager in 1931.

New Jersey Makes Purchase from Motorola

New Jersey has awarded Motorola, Inc, Chicago 51, Ill., a contract to supply the state's Department of Conservation Forest Fire Service with a complete state-wide 2-way FM radio communications system consisting of 30 base stations and 65 mobile units.

Kitchen Garbage Grinder Manufacturers Organize

A new electrical-product group, comprising nine companies that manufacture electric household food waste disposers and dishwashers, has been formed within the National Electrical Mfrs. Assn., 155 E. 44th St., New York 17, N. Y.

Chairman of the group, known as the Household Sink Units Section, is R. C. Cameron, manager of the Dishwasher and Disposal Department of Hotpoint, Inc., Chicago. Vice-chairman of the section is Millard F. Foist, assistant sales manager of the Given Mfg. Co., Los Angeles. John W. Hammes, president of the In-Sink-Erator Mfg. Co., Racine, Wis., is chairman of the section's technical committee.

Other companies affiliated with the section are: The Appliance Division of the National Rubber Machinery Co., Akron, Ohio; Thomas W. Berger, Inc., Cincinnati, Ohio; Eureka Williams Corp. Bloomington, Ill.; General Electric Co., Bridgeport, Conn.; The Hobart Mfg. Co., Troy, Ohio; and Westinghouse Electric Corp., Mansfield, Ohio.

LOOK TO THE LEADER FOR THE

PEERLESS CHAMPION

PEERLESS DEEP WELL TURBINE PUMP for Small Diameter WELLS

Squarely meets the need for turbine pump utility, stamina and reliability from 4" wells and larger

Here is the Peerless pump that successfully and completely fills the gap often found between domestic water systems and the larger deep well turbine pumps. The Champion is a powerful water producer from small diameter deep wells; it provides unsurpassed water lifting performance for a host of commercial and industrial uses requiring moderate gallonage and a clean water supply. Read the specifications to the right. If you find that the Peerless Champion turbine pump generally meets the water requirements of your business, write for full details, described and illustrated in a new Peerless engineering Bulletin. Do it today!

PEERLESS CHAMPION SPECIFICATIONS:

CAPACITIES: Up to 5000 gals. per hour

LIFTS: Up to 200 Feet

PRESSURES: Up to 90 lbs.

DRIVES: Available with electric head, right angle geared head for use with horizontal driver or Vee or flat belt drive.

WATER LUBRICATED: OPEN LINE SHAFT CONSTRUCTION

FOR 4 INCH DIAMETER DEEP WELLS AND LARGER

TOP FLIGHT PEERLESS QUALITY CONSTRUCTION THROUGHOUT

WRITE FOR BULLETIN B-200

Contains complete pump description, plus valuable engineering and water pumping data. Fully illustrated.

PEERLESS PUMP DIVISION

FOOD MACHINERY CORPORATION

Factories: Los Angeles 31, Calif.; Indianapolis, Ind.

District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 No. Broadway; Atlanta Office: Rutland Building, Decatur, Georgia; Dallas 1, Texas; Fresno, California; Los Angeles 31, California.

Mr. Public Works Official...
This is but one of a series of potent ads appearing throughout the year in national magazines—in our effort to help solve today's vital problem of traffic congestion.

IS THIS THE MOST *COSTLY FOOTAGE IN YOUR BUSINESS?*

CONSULT
your Traffic Manager, Architect and Engineer

Everything your business *consumes,* or *manufactures,* moves over your loading platforms. But if there isn't enough truck access space—room for them to move around in—the efficient movement of goods is slowed-down or "bottlenecked."

Today, many plant owners are realizing that inadequate shipping and receiving facilities can wipe out a nice profit picture . . . and are quickly correcting the fault. Minor remodeling is often the answer. Such costs are *small.* But the profits are *big.*

Plan for your needs 5, 10, 20 years from today. You'll be smart to call in your traffic manager, architect and engineer, *right now!*

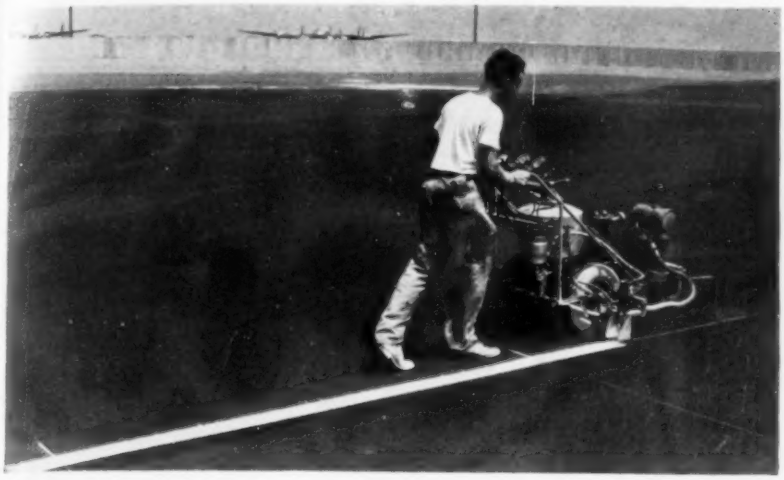
PLEDGED TO PROGRESS SAFELY

THE *AMERICAN TRUCKING* INDUSTRY

AMERICAN TRUCKING ASSOCIATIONS, WASHINGTON 6, D. C.

GOODS CAN'T MOVE FASTER THAN THEY'RE LOADED!

Guide Lines for New York City's Idlewild Airport



In time for the official dedication ceremonies on July 31, the E. M. Reynolds Co., Westport, Conn., formerly known as Maintenance Service, Inc., has just completed the initial part of the program of painting traffic markers on the access roads, parking lots, aprons, taxiways, and runways of New York International Airport at Idlewild, Queens, N. Y. The paint used was Prismo reflective paint and the Baltimore Paint Company's Gleem. Here a Kelly-Creswell Line Striper is applying Gleem.

Right-of-Way Markers for State Highway Departments

Concrete right-of-way markers are now being made by the Universal Concrete Pipe Co. plant at Dothan, Ala., for use by Alabama and Florida Highway Departments. The markers are being constructed in accordance with specifications set up by county engineers and contractors on state-highway department jobs.

Can be mounted on any short wheel-base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis . . . The Netco Unit can be removed from truck in 30 minutes, permitting use of truck for other purposes. The Netco Bucket closes pneumatically assuring positive and maximum digging efficiency . . . The Bucket has full 1½ cu. ft. capacity with no chains or linkage to obstruct operation.

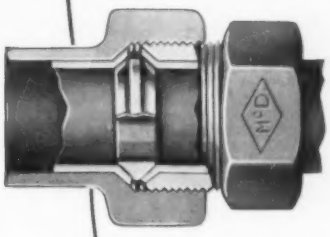
The Netco Catch Basin Cleaner is faster, safer and more economical to operate than any other method used to remove debris from catch basins.

Send for illustrated folder.

NETCO DIVISION CLARK-WILCOX COMPANY

118 Western Avenue, Boston 34, Mass.

COPPER SERVICE PIPE *Coupling*



a "Diamond Line" Product

Here is another of the famous Diamond Line waterworks items which is continuing McDonald's reputation for the best in quality, service and dependability—a reputation that has been known to the trade since 1856. Plate E-4756, Copper Service pipe Coupling for copper service pipe at both ends. Made with a Double Taper Cone—between the stud and coupling nut. In sizes ½, ¾, 1, 1¼, 1½ and 2 inches. Also available are couplings having both male and female iron pipe. Write for complete information on all items in McDonald's Diamond Line.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA
BRASS GOODS • PUMPS • OIL EQUIPMENT

4 BRAND NEW MICHIGAN TRUCK SHOVEL-CRANES...

SERIES 8

½ YARD 8 TON

Here's a range of four completely new half-yard MICHIGANS designed to meet *your* particular job requirements. Your choice of *single-engine* power or *twin-engine* power, *two-wheel drive* or *four-wheel drive*. Remote control, which permits fast, easy maneuvering on the job, is available as optional equipment on the twin-engine models.

Get all the facts! Write for your copy of Bulletin 101.

MICHIGAN

MICHIGAN POWER SHOVEL CO.

373 SECOND STREET, BENTON HARBOR, MICHIGAN, U. S. A.

Four Wheel Drive Holds Field Gathering

FWD field-sales and service representatives observe demonstrations of (left) the new FWD model ZU on the 70% hill-climb test. This was part of the second annual gathering held at the FWD factory in Clintonville, Wis.

Infilco Appoints Starling

Charles H. Starling has been appointed Southeast district engineer with headquarters in Decatur, Ga., by Infilco, Inc., 325 W. 25th Place, Chicago 16, Ill., manufacturers of water conditioning and sewage equipment.

Kaiser Promoted By Portland Cement

W. G. Kaiser has been appointed as assistant director of promotion for the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill. Mr. Kaiser previously held the position of manager of the Association's Farm Bureau.

Garbage Cans, Citizen Cooperation Needed To Eliminate Rats

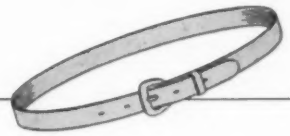
A potent rat controller.

Accepting the challenge presented by the nation's 123,000,000 rats, the manufacturers of galvanized-steel garbage cans have cut themselves in for a major role in the fight against the rodent menace now being waged in hundreds of American municipalities.

As the first step, the industry through its trade association, the Galvanized Ware Manufacturers Council, has become a member of the National Committee for Rat Control, recently organized by the U. S. Department of the Interior. The industry's next move will be an intensification of the Council's anti-rat educational program, keyed to the fact that most city rats thrive on garbage left lying in the open. The second step is rat-proofing of buildings and then the use of poisons and traps to eliminate all rats. Community action is the only way to abolish this danger, which today costs the country an annual $2,000,000,000.

Adjustable

TO THE WAISTLINE



Adjustable

TO THE

PIPE LINE

The Dresser Style 60 Bell-Joint Clamp is adjustable to variations in bell-and-spigot dimensions—makes installation easy and seal completely effective, even on off-size pipe.

High, uniform "pack" all the way around for a *permanently* tight repair on leaking bell-and-spigot joints.

DRESSER BELL-JOINT CLAMPS

ONE OF THE DRESSER INDUSTRIES

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pennsylvania.
In Texas: 1121 Rothwell St., Houston. In Canada: 60 Front St., W., Toronto.
Sales Offices: New York, Chicago, Houston, San Francisco

PRELOAD PRESTRESSED TANKS

PRELOAD PRESTRESSED CONCRETE TANKS ARE IMMEDIATELY AVAILABLE FOR A WIDE VARIETY OF SERVICES—WITH ECONOMY IN DESIGN AND CONSTRUCTION AND WITH LOWEST COMPARATIVE LONG-TERM MAINTENANCE COSTS

WATER STORAGE and TREATMENT

Ground, Standpipe and Elevated Tanks; Settling Tanks, Clarifiers, etc.

PETROLEUM INDUSTRY

Crude Oil, Bunker C, Fuels Oil, Gasolines, etc.

SEWAGE TREATMENT

Sludge Digesters, Clarifiers and Filters, etc.

PAPER MILLS

Pulp, White Water, and Black Liquor Tanks; Savealls, Precipitators, etc.

STORAGE SILOS

Grain, Cement Dry Chemicals, Coal, Rock, etc.

CHEMICAL & PROCESSING INDUSTRIES

Saveall Tanks, Acid and Alkali Storage, Precipitators, Mixers, etc.

Preload Prestressed Concrete Tanks, utilizing Preload Wire Prestressing, are available *now* using local labor and materials. No waiting—construction can start in several weeks—completion in several months. With no exposed metallic surfaces and dense Gunite construction, Preload tanks have a long record of "low-maintenance-cost-service" under an extreme range of weather conditions. Over 500 Preload Prestressed Tanks are in municipal and industrial service.

Send for tank data and our brochure "The Distinguished Clientele of The Preload Companies", a partial list which illustrates the wide versatility and established performance of Preload Tanks.

THE PRELOAD COMPANIES

420 LEXINGTON AVE., NEW YORK, N. Y.

Designers and Builders of Prestressed Concrete Storage Tanks and Pressure Pipe
Prestressed Concrete Bridges and Cement Lining of Pipe in Place

The Preload Corporation
New York—Boston—Washington

The Preload Central Corporation
929 Porter Bldg., Kansas City, Mo.

PRELOAD
TRADE MARK

The Preload Pacific Corporation
333 Kearney St., San Francisco

The Preload Co. of Canada, Ltd.
7325 Decarie St., Montreal, Que.

Other Duties for the Leaf Loader

Additional experience by municipalities with the Leaf Loader Division of the American Structural Steel and Tank Company leaf loader is showing it to be an all-year-round piece of equipment. These are some of the additional duties that it has shown itself able to perform:

1. Blowing sand for sand-blasting operations.
2. Ventilating sewers, sludge-digestion tanks, and gas and oil tanks during cleaning operations.
3. Spraying insecticides on trees and in park areas.
4. Picking up sand and cinders used for ice-control work in winter.
5. Picking up straw from concrete after the curing operation has been completed.
6. Picking up debris from grandstands and other public areas.
7. Cleaning out dirt accumulated in the bottom of catch basins. (This is done preferably when the catch basin is dry.)

The machine is reported to be able to pick up tin cans up to one gallon in size as well as glass bottles. A folder issued by the Leaf Loader Div., American Structural Steel and Tank Co., 21050 West 8-Mile Rd., Detroit 19, Mich. describes more fully these additional duties.

New Solderless Wiring Hand Tool Reduces Rejects

For wiring applications requiring installation of solderless terminals by manually operated tools, Aircraft-Marine Products, Inc., 1598 N. 4th St., Harrisburg, Pa., has developed a new line of hand tools that eliminate the possibility of faulty electrical connections resulting from operator fatigue or carelessness. The Certi-Crimp tools incorporate a device that prevents reopening of the tool for admission of a new terminal until it has been completely closed for a perfect crimp on a previous terminal.

FLINK SPREADER

Unquestionably the finest hydraulic spreader.

Hundreds more transportation companies, cities and counties are using Flink Spreaders to spread granulars in ice control and highway maintenance work. Spreads forward or backing up, full or half width of street. Controlled from cab.

Write for literature.

FLINK CO.

Dept. AC Streator, Ill.

NEW SANITARY GARBAGE CONTAINER WITH BUILT-IN DDT FUMIGATOR

SANICON

42½" wide, 21¼" deep, 46½" high. Mounted on 3" ball-bearing casters. Also available without casters.

ENCLOSES GARBAGE CANS COMPLETELY

RUSTPROOF—KEEP INDOORS OR OUT

REPELS DOGS, CATS, RODENTS, ETC.

MOUNTED ON CASTERS—EASY TO MOVE ABOUT

CANNOT BE OVERTURNED

SINGLE AND DOUBLE SIZES

SANICON eliminates health hazards and mess of exposed garbage -- keeps garbage cans enclosed and fumigated with built-in DDT compound. Complete protection against spilling, overturning and pestilence of flies, rats, vermin, disease-bearing insects, etc. SANICON is made of rust-proof aluminum alloy. Single and double size. WRITE FOR FREE FOLDER

Metal apron funnel refuse into inside cans. Top doors remain open to allow use of both hands for loading.

Double size holds two cans up to 26 gallons capacity each. SANICON can be easily wheeled to collection spot.

Pat. Applied For

MANUFACTURER'S AGENTS WANTED

THE SANICON CO.

WESTERN UNION BLDG. NORFOLK, VA.

"VISIBLE STORES CONTROL helps us realize peak efficiency and substantial savings"

say officials of
ELECTRIC POWER BOARD
of Chattanooga, Tennessee

$30,896 saved on reclaimed parts in 1947 alone — that's just one of the savings achieved by Chattanooga's Electric Power Board through effective administration.

Materially lowered costs of utility administration, while assuring effective, simplified control of the thousands of items needed to maintain efficient service to 54,000 customers — that's the result of the visible stores control record used by the Electric Power Board of Chattanooga, Tennessee.

Thanks to the basic simplicity of this Kardex record, *two girls* perform all control work with speed and accuracy, despite the tremendous variety of parts represented — everything from tiny nuts to massive spools of cable and the poles that support overhead power lines.

Key to the effectiveness of this control system is the Kardex visible margin on the pocket of each record, with graphic signaling of all vital facts: too-low stocks, order points, supplier data, follow-ups necessary and probable period of stock depletion, item by item.

Kardex Stores Control steps up efficiency, lowers operational costs in all phases of Public Works Department administration: water, sewage, buildings, streets, traffic, lighting. Investigate *now*.

1873 THE FIRST TYPEWRITER 1948 75 ANNIVERSARY REMINGTON RAND

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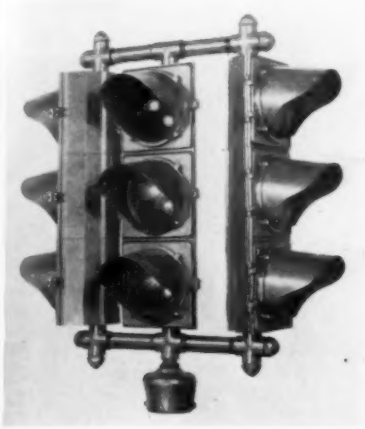
SPECIAL GOVERNMENT ISSUE OF SYSTEMS MAGAZINE—FREE ON REQUEST

The Chattanooga Stores Control Plan is fully described in the latest issue of Systems for Government Administrators—authoritative Remington Rand publication on new, efficient record-keeping methods for all branches of government. If you have not already received your copy, call our office near you, or write Systems Division, 315 Fourth Avenue, New York 10.

Remington Rand
THE FIRST NAME IN RECORD SYSTEMS

New Multi-Signal Traffic Lights from G-E

A new line of adjustable traffic signals with an optical system redesigned to eliminate reflector deficiencies and



inaccuracies has been announced by the General Electric Co., Schenectady 5, N. Y. The new signal is available in models ranging from one-way, one-color to four or more ways with unlimited signal indications on each signal face.

The system uses a new sagged glass reflector which is supported in the housing and remains in the signal when the door is open. A dust-tight seal between the reflector holder and the door is made by a crowned, air-cored, resilient, extruded gasket. Lens protection is provided by the same gasket as it envelopes the periphery of the lens.

The optical system mounting is rendered practically shockproof by floating the reflector holder on hinges and retaining it in the signal housing by thumb-operated spring latches. Complete access to the reflector and socket is provided by swinging the assembly from the signal housing.

Death of George W. Dolan

George W. Dolan, chairman of the board of directors of the Mathieson Chemical Corp., 60 E. 42nd St., New York 17, N. Y., died recently after a brief illness.

Mr. Dolan joined Mathieson as a salesman in 1930. By 1937 he was assistant to the president and the following year was named vice-president. Two years after that he was chosen executive vice-president and in 1944 became president of the company. In April 1948 he was named chairman of the board.

Mathieson Purchases Plant From W.A.A.

The War Assets Administration and the Mathieson Chemical Corp., 60 E. 42nd St., New York 17, N. Y., have concluded an agreement for the chemical company of purchase the ammonia plant and ammonia-oxidation facilities at Lake Charles, La., for $7,063,300.

Built by Mathieson for the Defense Plant Corporation, the plant was leased to the company and production began in the fall of 1944, the entire output going into the manufacture of high explosives for the remainder of the war.

For Inspectors of Weights and Measures

A newly revised 28-page catalog of Gurley Precision Standards of Mass, Volume, and Length for official, commercial, and scientific use, has been issued by W. & L. E. Gurley, Troy, N. Y., manufacturer of engineering and scientific instruments. The catalog contains information concerning the tolerances on standards allowed by the National Bureau of Standards; descriptions of the various weight systems (avoirdupois, apothecary, grain, carat, and troy) with tables of equivalents; discussion of commercial and standard measures of volume, and office and field standards of length. Material illustrated includes Classes A, C, M, and S, as well as Screw Knob Precision Weights, liquid-capacity standards from 1 gallon to 1 gill, or 5 liters to 2 deciliters; yard and meter standards of length; 50- and 10-pound balances, and full listing of the Gurley portable field-inspection outfit.

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Up to 180 copies per minute. Stencils now on and off in seconds.
The complete new line of A. B. Dick "400" mimeographs with Flexamatic Control brings you new ease and speed in producing clear, permanent copies of written, typed and drawn materials.
See all the new models. For use with all makes of suitable stencil duplicating products. Your nearby A. B. Dick branch or distributor—listed in the phone book—will be glad to give you a demonstration. Or write A. B. Dick Company, 720 West Jackson Boulevard, Chicago 6, Illinois. The Mimeograph Company, Ltd., Toronto, Canada.
A. B. DICK
the oldest name in mimeographing

Owens-Corning FIBERGLAS*
the underground pipe wrap that's proved in use

When you specify OWENS-CORNING Fiberglas Pipe Wrap, you get an inorganic reinforcing material that's backed by years of research and manufacturing experience—and by successful application on many petroleum and gas pipe lines.

Fiberglas Underground Pipe Wrap is a thin, porous, web-like mat of long, fine fibers of glass. It provides a superior reinforcement for the bitumen coating that adds years of efficient, economical protection to your pipe line.

This mat is noncorrosive. The fibers are chemically inert, do not absorb the bitumen's life-giving oils, are unaffected by moisture or soil acids. The speed with which the wrap pulls into the coating before cooling assures a strong mechanical reinforcement; mat porosity permits bubble-forming air or vapors to escape quickly.

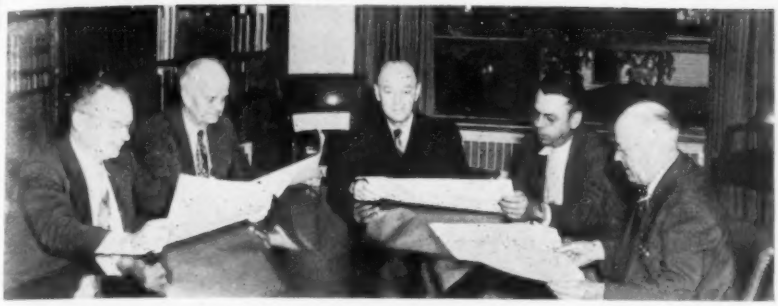
As the first step in cutting your corrosion-protection costs, send for complete information about OWENS-CORNING Fiberglas Underground Pipe Wrap. Write Owens-Corning Fiberglas Corporation, Dept. 954, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.

OWENS-CORNING
FIBERGLAS
UNDERGROUND
PIPE WRAP

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation

FWD Appointments



FWD's Engineering Staff, left to right: G. D. Simonds, chief engineer; B. G. Donley, manager of development engineering; H. B. Dodge, technical advisor to management; D. B. Olen, director of engineering, and James Sorenson, metallurgist and research engineer.

As part of an acceleration in its development program, The Four Wheel Drive Auto Co., Clintonville, Wis., has announced a research program and several changes of personnel.

Donald B Olen, formerly chairman of the Manufacturing Committee, has been named director of the Engineering Division, and H. B. Dodge, former director, has been promoted to the position of technical advisor to the management of the company. G. D. Simonds, previously holding the managership of design engineering, has been named chief engineer in charge of design of Standard FWD models. B. G. Donley is manager of development engineering, concentrating on specialized products. James A. Sorenson, metallurgist for the company for more than 30 years, is now research engineer.

As one phase of its experimental program FWD is sponsoring a research project being conducted by the College of Engineering of the University of Wisconsin. FWD's original grant to the project was $50,000, and an additional $15,000 was granted to the university this year.

Chain Belt Opens Branch

The Chain Belt Co., Milwaukee 4, Wis., has opened a sales office at 2900 West Clay St., Richmond 21, Va.

Buckeye ENGINES
DIESEL & DUAL FUEL
MEDIUM SPEED HEAVY DUTY UNITS

SIZES — 120 TO 1500 H.P.
built for
MUNICIPAL
PUBLIC UTILITIES
WATER WORKS
SEWAGE DISPOSAL
PLANTS
WRITE FOR CATALOG 907
ENGINE BUILDERS SINCE 1908
The BUCKEYE MACHINE COMPANY
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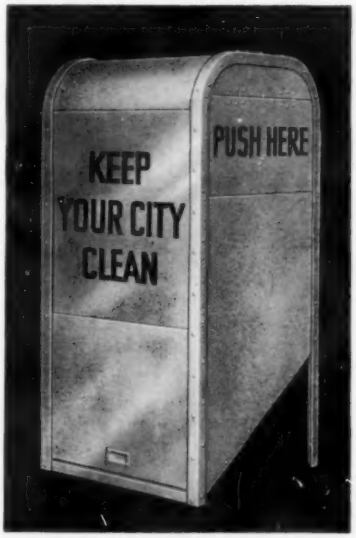
Smithson Trash Receptacles



16 years of research and engineering have produced the world's most useful and most beautiful Trash Receptacle.

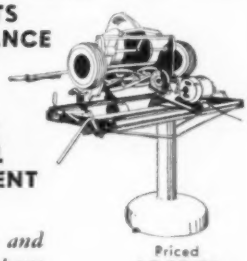
- LOW COST OF MAINTENANCE
- NO PAINTING
- FACTORY SUPPLY OF SPARE PARTS
- SMOTHERS FIRES
- MADE OF ALUMINUM
- NO CORROSION

Write today for more reasons why the City of Los Angeles purchased 577 of these units.

SMITHSON COMPANY
219 So. Mednik Ave., Los Angeles 22, Calif.

THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS
•
LOWER CAPITAL INVESTMENT
•



Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

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160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.

VICE-PRESIDENT IN CHARGE OPERATIONS WANTED

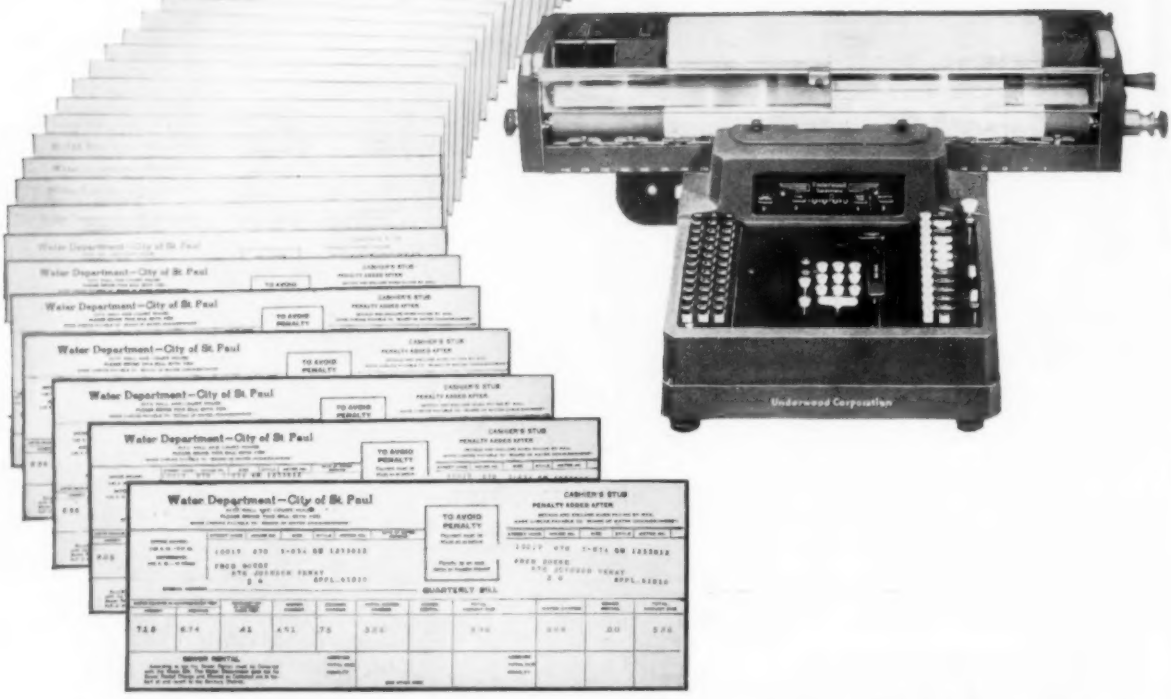
Water Company in the East —all properties in one state —with aggregate annual gross revenues of company and subsidiaries approximately $4,000,000 a year. Excellent growth possibilities.

Fine opportunity for proven utility executive having good engineering background plus strong administrative experience. Ability to reduce operating costs and well-developed concept of necessity of earning adequate return on investment fundamental prerequisites. Salary in the $12,000—$14,000 range depending upon qualifications. Reply in detail with snapshot.

Address Box 2289
THE AMERICAN CITY
470 Fourth Ave.
New York 16, N. Y.

65,000 Water Bills

for the City of St. Paul



UNDERWOOD SUNDSTRAND

automatically prepares the amounts of the bills, proves the accuracy of the amounts for each meter book, and on bill and stub prints the total water charge due, the total sewer rental and the grand total due. *The same machine* is used for cash posting.

A few of the well known municipalities using Underwood Sundstrand machines are Pontiac, Mich., and Berwyn and Rockford, Ill., on water billing; Allentown, Camden and Passaic, N. J.; Niagara Falls and Rochester, N. Y.; Wyandotte, Mich., on tax billing and posting; Pittsburgh, Pa., on payroll accounting.

Let us send you Underwood Sundstrand particulars

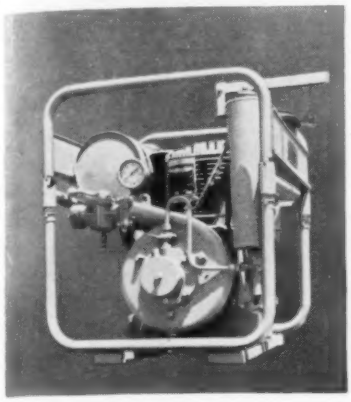
UNDERWOOD CORPORATION

Accounting Machines . . . Typewriters . . . Adding Machines . . . Ribbons, Carbon Papers and Other Supplies

One Park Avenue — **New York 16, N. Y.**

Sales and Service Everywhere

Portable Centrifugal Pump Handles 150 GPM



The Model FZZ centrifugal pumping unit from the Hale Fire Pump Co., Conshohocken, Pa., is portable, self-powered by a 7.7-hp 4-cycle, air-cooled Briggs & Stratton gasoline engine, and can handle 60 gpm at 90 pounds pressure and 150 gpm at 30 pounds.

The pump measures 20 7/16 inches by 22 5/16 inches by 25⅛ inches, and is available either with a hand-carrying frame or a barrow-type carriage with pneumatic tires, or for stationary mounting.

It may be used as emergency fire equipment, for high-pressure washing, pumping water from excavations, emptying or filling tanks or tank cars, construction work, or irrigation.

Hand priming, clutches, or gears are eliminated as a result of the Hale ejector priming system.

Easy Office Duplicating

For making 300 to 500 copies from one master, Ditto Incorporated, 2243 Harrison Street, Chicago 12, Ill., makes both manual and electric machines that produce in up to four colors: red, green, blue, and predominant color purple, which mades the maximum number of copies. The electric model with automatic feed runs 85 copies per minute. Operation is learned in 15 or 20 minutes and consists of placing the master in the drum, putting the paper in a tray, and flipping a switch—and the copies come out on a receiving tray face up and flat. A fluid and pressure control permits the copies to be maintained at uniform clarity. The smallest-size paper that can be duplicated is the 3 by 5 inch card. The largest is 9 by 14 inches for the manual machines and 9 by 17 inches for the electric.

Hanline Celebrates 100th Birthday

Hanline Brothers, Baltimore 30, Md., is celebrating its 100th year in the paint business under the ownership or direction of direct descendents of the founder. Starting out as a mercantile organization, importing and selling rather than manufacturing, the organization is today primarily engaged in the manufacture and packaging of ready-to-use products.

Today, the company manufactures Zonemark traffic paint, Platenized house paint, Ideal Semi-Paste, Primax-Priming, Staztrue, stucco and cement paints, floor and deck enamels, shingle stains, Cre-O-Ite white paint containing creosote, roof paints, wagon, tractor, and implement paint, interior gloss paints, Han-Bro-Lyte, Duzital, Hantex, Hanseal sealers, wood and varnish stains, putty and caulking compounds, and special items to meet demands.

A Roller For Every Job

Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.

Pierce Medium Bear
3½-5 tons

Pierce Baby Bear
2½-3 tons

The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.

Pierce-Bear Rollers
Lewis Manufacturing Co.
115 Hoefgen Ave.—San Antonio 6, Tex.

Significant Books for All City Officials

NEW YORK: THE WORLD'S CAPITAL CITY
Its Development and Contributions to Progress

By *Cleveland Rodgers*, Member, N. Y. C. Planning Commission, and *Rebecca B. Rankin*, Librarian, N. Y. Municipal Reference Library. This fascinating account of the extraordinary growth of New York City from Dutch trading post to world metropolis will be absorbing reading for every civic official. Here is a record of how forces from finance, politics, and personalities, to newspapers, education and the United Nations combined to make this city the financial, cultural and commercial center of the world. $5.00

THE FUTURE OF HOUSING

By *Charles Abrams*, Author of "Revolution in Land". " . . . the most comprehensive and up-to-date study available on the housing problem."—AMERICAN CITY. " . . . until more Americans share the author's understanding of the impossibility of getting adequate housing through reliance on the present organization of construction and financing, ineffectual remedies will continue to be offered as panaceas."—JOURNAL OF HOUSING. $5.00

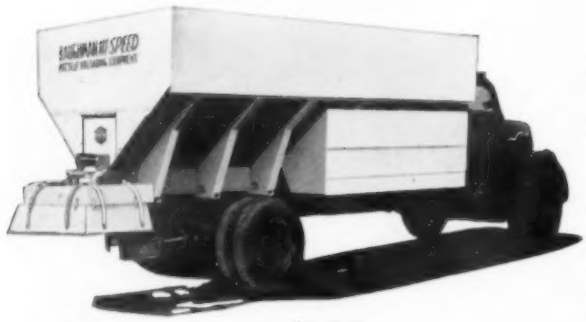
AMERICAN PLANNING
Past, Present, Future

By *Cleveland Rodgers*. Government workers at every level will welcome this volume for its illumination of the current controversy over public planning. Demonstrating that planning has never been absent in our nation's history, the author supplies a lucid, vigorous statement of the present needs and approaches to economic foresight which are essential to our nation's growth. $3.00

At your bookstore or from

HARPER & BROTHERS
49 East 33rd St., New York 16, N. Y.

Get Ready for winter ...with BAUGHMAN Spreaders



Skid-Proof Streets and Highways Faster and at Lower Cost

SPEED COUNTS when roads become icy! The BAUGHMAN spreads cinders, sand, salt, other skid-proofing materials from 8 to 30 ft. at speeds up to 25 mph. Completely regulated volume.

CUT COSTS! One man and a BAUGHMAN do the work of two crews with two ordinary bodies—and do a better job. ALL-WEATHER-OPERATION — built-in exhaust heater keeps loads in loose working condition . . . prevents conveyor chain from freezing to bottom.

CAB-CONTROLLED VACUUM CLUTCH permits driver to start and stop both drag chain and spinner. One-man control . . . no waste of material. Skid-proofs hills and curves to proper lengths . . . spot-spreads at junctions and crossovers. Note (right) how baffle plates control width of spread.

BAUGHMAN Model C Spreader Attachment For Dump Bodies

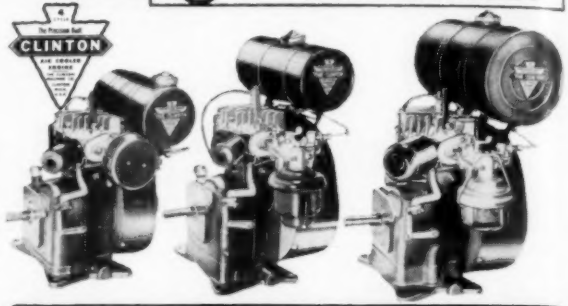
Requires no hopper . . . spreads up to 25 ft. Positive roller chain drive and auger-type feed. Rugged compact construction. Heavy hardened cut-steel gears, completely sealed against dust. Fits bodies 5½ to 6½ ft. wide. Other widths on special order.
ALSO AVAILABLE WITH HYDRAULIC MOTOR DRIVE.

Write for Full Information

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
291 Shipman Rd. Jerseyville, Ill.
"There is a Baughman Distributor Near You"

CLINTON ENGINES Now 3 POWER RANGES



¾ to 1.2 H.P. • 1½ to 2 H.P. • 2½ to 3 H.P.

4 CYCLE • AIR COOLED

NOW—in addition to the famous CLINTON 700 Series and 1100 Series Engines—CLINTON offers the engine that so many wanted—the New 500 Series Engine—¾ to 1.2 h.p.—*there's nothing finer.*

Use these sturdy, easy starting CLINTON engines for tractors, generators, grain augers, small boats, bicycles, mowers and other uses on and off the farm. CLINTON engines (sold world-wide—service anywhere) give peak performance at all times, under all conditions.

For full information write Dept. 100AC

It's Powered **BEST** *When* **CLINTON** *Powered*

CLINTON MACHINE CO.
CLINTON, MICHIGAN

TABLETS OF ENDURING BEAUTY

Mark buildings . . . record deeds and heroes . . . let NEWMAN PLAQUES of bronze or aluminum emblazon names in immortal beauty. NEWMAN has been famous internationally since 1882 for tablet perfection.

Write Today *For Tablet Catalog. Absolutely no obligation.*

66 YEARS YOUNG

NEWMAN BROTHERS, Inc.
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WAR SURPLUS BARGAIN!

Brand New Steel Refuse Cans

Worth at least $15.00

Our Price
1 to 5 $7.00 ea.
6 to 25 $6.50 ea.
26 to 50 $6.00 ea.
51 to 100 $5.50 ea.

F.O.B. Ordill, Ill.

Buy these BRAND NEW galvanized steel refuse cans at a fraction of their original cost. They have many uses—as refuse cans in forest preserves, parks, playgrounds, buildings, etc. and as storage containers for any material or liquid because they're **watertight** and **waterproof.** Tight fitting lid keeps rodents and vermin out of can. Sturdily built to take abuse. Capacity: 64 gal. yet light enough for easy handling. Order your requirements today—they won't last long at this price!
Special price on larger quantities and carload lots. Write for our FREE illustrated circular of WAR SURPLUS BARGAINS.

126-28 S. CLINTON STREET, ROOM 211 CHICAGO 6, ILL.

Malone Appointed Manager Of National Supply Division

Wren Malone has been appointed manager of the Springfield region for the Superior Engine Division of the National Supply Co.; his headquarters will be in the company's main offices in Springfield, Ohio.

Mr. Malone succeeds E. D. Cahill.

Electronic Recorders Featured At Instrument Show

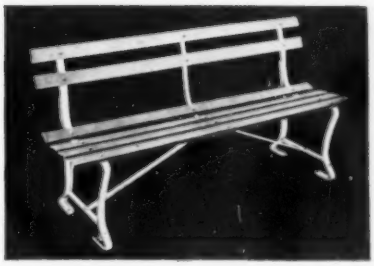
The Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio, will feature its standardized electronic-type recorders at the Third National Instrument Conference and Exhibit in Philadelphia, September 13 to 17.

Shown in actual operation for the first time will be the company's newly developed pH, conductivity, and smoke density recorders, the first two combined in one instrument.

All-Metal Settee For Parks, Playgrounds

The Stewart No. 470 Samson all-metal settee, for use in parks, playgrounds, and recreational centers, is built in three lengths: 4, 5, and 6 feet.

The settee has a hot-dipped galvanized framework with No. 15-gauge steel slats, four on the seat and two on the back, bolted to the framework.

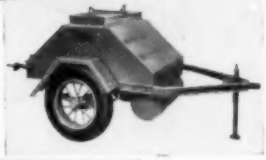


Possible damage to clothing is minimized through the use of flat, round-head bolts and rounded corners. With metal, there is neither splintering, deterioration nor rotting from alternate exposure to sunshine and rain. Maximum rust resistance is attained through protective painting and galvanization. The Stewart Iron Works Co., Inc., 1521 Stewart Block, Cincinnati 1, Ohio, is the manufacturer.

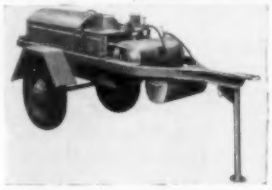
Logan Joins Dorr Company

Robert P. Logan, for the past three years assistant professor and research specialist of the Department of Sanitation, Rutgers University, has joined the staff of The Dorr Company, Engineers, 570 Lexington Ave., New York 22, N. Y., as assistant to Dr. Anthony J. Fisher, chief sanitary development engineer.

Always on the Road
HAUCK
Melting Kettles
Asphalt Tool Heaters
Asphalt Surface Heaters
Road Oil Distributor Burners



Hauck Asphalt Tool Heater and Melter for Binder Cement.



Speed Master Melting Kettle for Asphalt and Tar.

For road paving or repair work, Hauck Oil Burning Tar and Asphalt Melting Kettles, Tool Heaters and Burners are recognized the best for tough service and ready portability. Prompt shipment of any type or size you need. Write for Highway Construction and Maintenance Catalog.

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Interchangeability
..AN OUTSTANDING FEATURE OF
BUFFALO METERS

Buffalo Meter Company has perfected an interchangeability of parts that is unsurpassed. Not just an interchange of expensive unit assemblies, but *actual interchangeability of parts, piece for piece.*

This full interchangeability of parts in Niagara and American Meters is made possible by their simplicity of construction. Other advantages of Buffalo Meter's simplified construction are *ease of repair* and *reduction in stocks of parts* needed for repair.

Buffalo Meter interchangeability of parts is illustrated by the two halves of the measuring chamber, which are available separately; do not have to be factory matched pairs.

Buffalo Meter Company manufactures The *American* Meter (bronze casing) for soft water, and the *Niagara* (galvanized-iron casing) for most hard water requirements. Send for literature.

AMERICAN BRONZE CASE
NIAGARA GALV. IRON CASE
WATER METERS
BUFFALO METER COMPANY
2902 MAIN STREET • BUFFALO 14, NEW YORK
Simplicity

McWANE

For Quicker Trench Poured Joints!

CAST IRON

B&S

WATER PIPE

EASY . . .
To CUT . .
To TAP . .
To LAY

Every foot of McWANE Bell & Spigot Pipe meets rigid Standard Class 150 Federal Specifications, 500 pounds test. Lasts for centuries. Corrosion resisting. Makes the perfect Water Main!

ALL SIZES
2" thru 12"

McWANE CAST IRON PIPE CO.
BIRMINGHAM 2, ALA.

USE THE MONEY-SAVING, ACCURATE

GEOPHONE

Registered in U. S. Patent Office

TO LOCATE LEAKS WITHOUT DIGGING!

Simple and accurate. By placing the Geophone discs on the ground, a leak in water or steam pipes can be detected from as much as 50 feet away. Save costly surveys, and futile excavating and replacing. The Geophone will save you valuable time, and pay for itself many times over.

Thousands Now in Use

The Globe Geophone has proved itself indispensable to thousands of Public Works Departments and industrial plants. It is without question the most sensitive and reliable instrument for detecting underground leaks. Unique in its ease of use, accuracy, and reliability.

Complete Geophone outfit consists of two Geophone discs, headpiece, connecting tubes, and heavy leather-covered carrying case with shoulder strap. **$85**

Pipe Phones $3.70 **Pipe Finders $110**
Dipping Needles $20

GLOBE PHONE MFG. CORP.
Manufacturers of Geophones Since 1918
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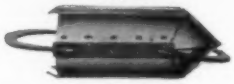
KEEP SEWERS OPEN with OK CHAMPION POWER SEWER CLEANER

OPEN



CLOSED

Town and City officials throughout America are adopting OK CHAMPION Power Sewer Cleaner to keep sewers clean and efficient. Takes roots, dirt, sand, and other debris up from main in one continuous operation. All men work above street level.

Pulling forward opens the jaws that bite into obstructions. Reversing the pull on the bucket automatically closes jaws which hold load pulled back to street level. Write for complete details.

CHAMPION CORPORATION 4716 SHEFFIELD HAMMOND, IND.

PROTECTING THE NATION'S RESERVOIRS!

Experts in metal fabrications since 1886

Stewart 3TH Non-Climbable Chain Link Wire Fence assures the utmost in protection for reservoirs and all other public property. Stewart products for protective purposes also include: Wire Window Guards, Wire Mesh Partitions and Steel Folding Gates. When writing for information please mention products in which you are especially interested.

THE STEWART IRON WORKS CO., INC.
1521 Stewart Block Cincinnati 1, Ohio

Stewart IRON and WIRE FENCES

The Old and the New In Insulators

Styles haven't changed too much in 37 years. The "old-fashioned" lady at the right is holding the original high-efficiency, one-piece, petticoat-type cap and pin-suspension insulator first made by the Ohio Brass Co., Mansfield, Ohio, in 1911. The girl at the left, in a New Look afternoon outfit, is holding the 25-millionth insulator produced at the Barberton plant of Ohio Brass. This type of insulator is used occasionally as dead ends and angle positions on 11,000-13,200 volt systems, and is standard construction for power transmission lines.

Easy and Fast Transportation Of Spreader Boxes

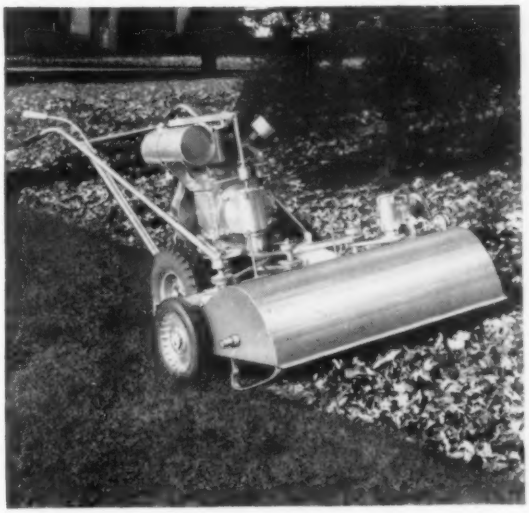
Easy, safe, and fast loading and transportation of heavy-stone or chip-spreader boxes is provided by the Safe-Easy Transporter on which 9- to 12-foot boxes can be trailed at full speed.

One man is needed to place the Transporter over a spreader box. Then, using the worm-gear crank on the machine, the operator hoists the box on two lifting hooks and further secures it with a chain sling. The front end of the box bolts to the rigid drawbar for traveling. Loading is accomplished in less than 1½ minutes.

The unit, manufactured by the Highway Special Equipment Co., 2040 Wilson Rd., Hilliards, Ohio, is 69 inches wide, hub to hub.

The Safe-Easy Transporter.

Announcing . . . THE STANDARD LEAF PULVERIZER



A new attachment for Standard Power Mowers.

NO RAKING
•
NO HAULING
•
NO BURNING
•
NO SMOKE
•
NO ASHES

Here is what you've been waiting for! Dispose of your leaves; at the same time fertilize your lawn.

Write for Circular to Dept. AC

STANDARD MANUFACTURING & SALES COMPANY • LEBANON INDIANA

How often are you refilling sweeper broom cores?

AFRICAN BASS FIBRES

INDIAN PALMYRA STALKS

Fresh, high quality fibres make a big difference in sweeper mileage you get between broom core refills. We are able to offer you the best fresh quality fibres in all types and sizes. Your inquiry will receive our prompt attention.

MOUNTAIN HICKORY SPLINTS

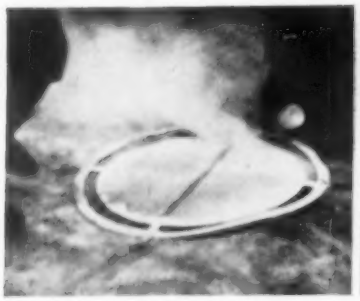
STEELWIRE CHINA SPLIT BAMBOO

The OTTO GERDAU CO.

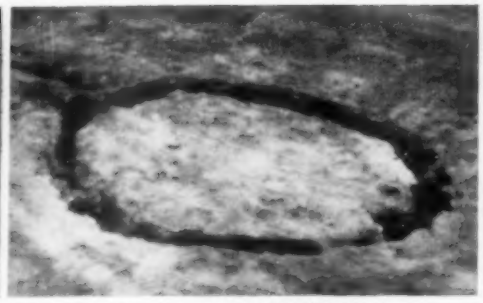
Established 1872

82 Wall Street, New York 5, N.Y.

ICE-DESTROY opens frozen manhole covers



When the cover has been located the frame is put on and ICE-DESTROY sprinkled into the slots.



This shows how the ICE-DESTROY has performed the work. The ice at this location was 7-9 inches thick. This work usually takes 2 men 4-8 hours by hand!

The cake of ice being lifted from the cover. The whole operation only took *5 minutes!*

THE speed and effectiveness of ICE-DESTROY in opening up frozen manholes was established with the larger utilities last winter. Using this inexpensive, newly-available chemical, a job of hours was reduced to minutes. This saves money, but it also eliminates the bitter drudgery of pick work. Locate the manhole, and all you need is a template and a supply of ICE-DESTROY. *Send for literature! Now's the time to prepare.*

CHEMICAL DEVELOPMENT CORPORATION

31 GARDEN ST.
NEWARK 5, N. J.

HAND
STORAGE BATTERIES
FOR MUNICIPALITIES

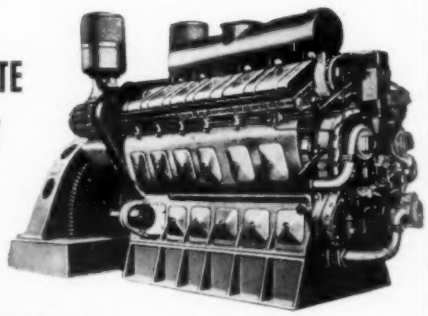
HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

DIESEL GENERATOR SETS

FOR

IMMEDIATE DELIVERY



UNIT CAPACITIES
10 TO 1420 KVA

A.C. 50 AND 60 CYCLES
ANY VOLTAGE

Write or wire today for bulletins and complete information regarding these fine fully guaranteed DIESEL ENGINE GENERATING UNITS.

AG SCHOONMAKER CO INC.
50 CHURCH STREET NEW YORK 7, NEW YORK

Holophane Appoints Three Vice-Presidents

C. C. Keller

S. R. Stuart

Kurt Franck

Clarence C. Keller, Stuart R. Williams, and Kurt Franck have been appointed vice-presidents of The Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

Mr. Keller, who joined the company in 1929, rose to sales manager in 1943 from which position he rose to his present appointment.

Following several years as a special representative of Westinghouse Electric Corp., Mr. Williams joined Holophane, also in 1929. In 1936 he was appointed manager of the street-lighting department, and in 1941, assistant works manager.

A graduate of the Technische Hochschule, Mr. Franck joined Holophane in 1935 as an illuminating engineer. Eleven years later he became chief engineer.

Signalmen to Meet in Buffalo

Municipal signal engineers and their suppliers of equipment will gather at the Hotel Statler in Buffalo, N. Y., Oct. 4 to 7, for the 53rd annual meeting of the International Municipal Signal Association, Inc., Irvin Shulsinger, secretary.

The program will cover fire alarm, police signaling, traffic signals, police radio, fire radio, and street and airport lighting.

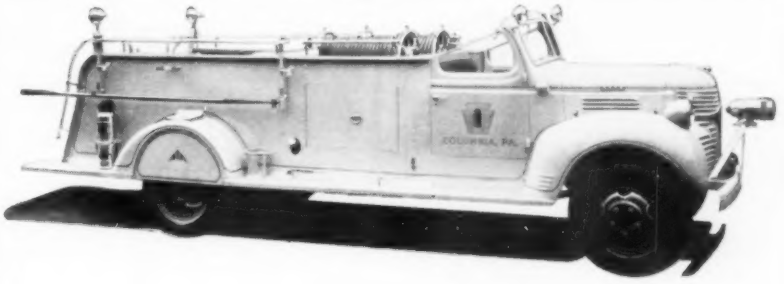
Werblin Appointed Sales Engineer By Griffin Wellpoint

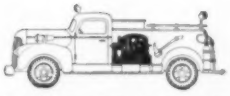
David A. Werblin has been appointed sales engineer for the northeastern territory of the Griffin Wellpoint Corp., 881 E. 141st St., New York 54, N. Y. Mr. Werblin was formerly associated with Parsons, Klapp, Brinckerhoff and Douglas, consulting engineers, as a construction engineer.

Increase Underground Efficiency with Fresh Air to Workers

The Vano design A ventilator is used to provide fresh air to men working in sewers, wet wells, and similar places, promoting safety and comfort and helping to increase worker efficiency.

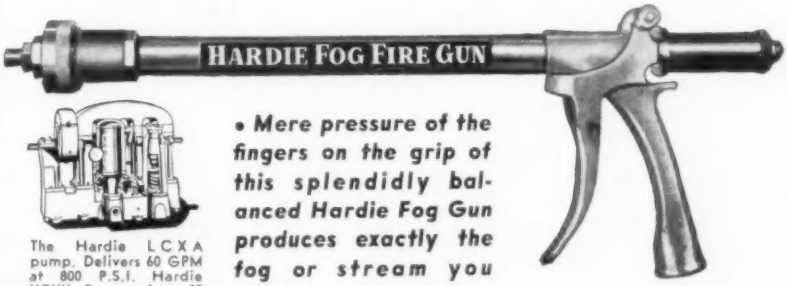
Ideal for ventilating tanks, sewers, sewage digestion tanks, pumps, wet wells, tank cars, underground cable manholes, pipe galleries, and other confined places, the ventilator has 8-inch-diameter flexible canvas tubing which is easily collapsed while in service. The motor is ½ hp, a.c. or d.c. An explosion-proof type is available for use in hazardous locations. The mechanism is manufactured by the Coppus Engineering Corp., Worcester 2, Mass.





• This beautiful Fog Fire Fighter built by Oren Roanoke Corporation for Keystone Truck & Chemical Engineering Company, Columbia, Pa. is equipped with a Hardie LCXA High Pressure Pump, a Hardie Trigger controlled Fog Gun, 400-gallon booster tank and is mounted on a 2½-ton Dodge Truck.

This is a typical example of how leading fire equipment manufacturers are employing Hardie pumps and guns. Specify a Hardie pump for assured stamina, dependability and sustained pressure. Write for data.



The Hardie LCXA pump. Delivers 60 GPM at 800 P.S.I. Hardie XCXX Pump gives 35 GPM at 800 P.S.I.

• *Mere pressure of the fingers on the grip of this splendidly balanced Hardie Fog Gun produces exactly the fog or stream you want.*

THE HARDIE MFG. COMPANY
Los Angeles 11, Calif. • Hudson, Mich. • Portland 9, Oregon
Export Dept.—Detroit 26
Canadian Office—Clarence W. Lewis & Son Ltd.—Grimsby, Ont.

HARDIE
High Pressure PUMPS AND FOG GUNS
for Fog Fire Fighters

A ROLLED PATCH IN TIME SAVES NINE WITH A *TRAIL-O-ROLLER*

When patching those holes in Streets, Highways or Runways put them in to stay—use a Model No. 155 Trail-O-Roller. Fix the patch *once*, not nine times. Roll it —make it a permanent part of the road surface. The Trail-O-Roller speeds up and cuts the cost of road repairs—*it trails behind the maintenance truck at any speed*, in two minutes is ready to roll the patch; the compaction being equal to that of a 5 ton tandem makes those patches stay in place for good. Dozens of patch jobs can be rolled in a single day. And too, the patented Hydraulic Raising and Lowering system makes it easy to raise and lower the roller. The Trail-O-Roller is the most versatile and efficient maintenance unit ever designed for modern road repair work. Write for Bulletin No. 3.

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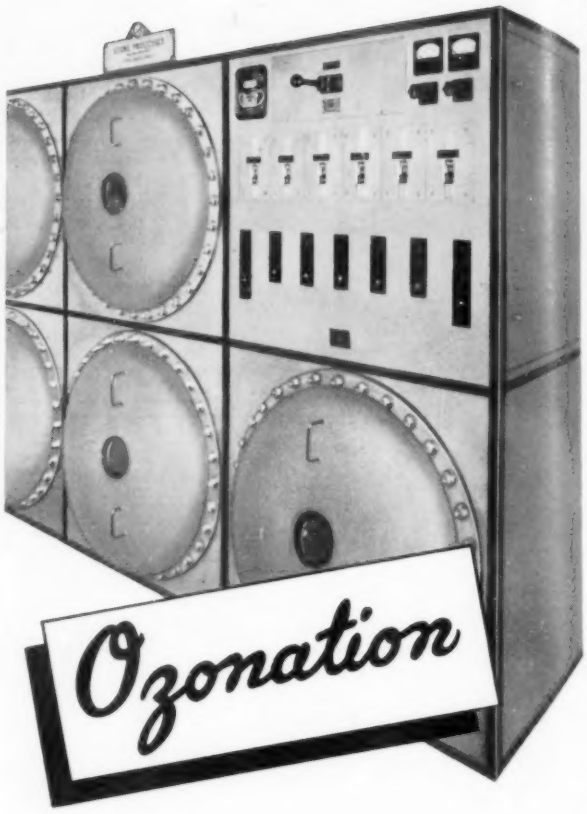
"Tankar" Steam Heaters	Highway Brooms	Asphalt Supply Tanks
"Kwik-Melter" Roofers Kettles	Tool Heaters	No. 101 Utility Spray Tanks
Trail-O-Rollers	Trail-O-Distributors	84-HD Asphalt Kettles

BLACK TOP ROAD MAINTENANCE EQUIPMENT — LB — SINCE - 1900

LITTLEFORD

LITTLEFORD BROS., INC.

500 E. Pearl St., Cincinnati 2, Ohio



A SIMPLE, MORE EFFECTIVE METHOD OF WATER TREATMENT

Yes, OZONATION is a simple, more effective method of water treatment. To prove its adaptability to your water treatment problems, WELSBACH maintains a completely equipped central laboratory for testing your water as well as a self-contained mobile unit for pilot plant testing in the field. Let us demonstrate and investigate your treatment problems on the spot. Write for detailed information.

WELSBACH

THE WELSBACH CORPORATION

OZONE PROCESSES DIVISION

1500 WALNUT ST. **PHILA. 2, Pa.**

Clear Traffic Lanes of Snow

Nelson snow loaders remove loose snow, wet snow, and hard-frozen ice. The feeder mechanism is spiral, with steel teeth that pick before they shovel, digging into packed and frozen snow without slugging shocks; the feeder teeth are renewable.

The Nelson KR-5 is self-propelled and one-man operated. It digs 8 to 12 yards a minute, has two speeds forward and two reverse. Separate Twin Disc clutches control traction, and the elevator clutch has an automatic overload release to prevent damage to the machine. The Nelson K chassis converts to a bucket loader, so the machine may be used all year handling sand, earth, gravel, or broken stone up to 2½-inch size. Unconverted, the KR-5 can handle coal or cinders, as well as snow and ice.

Powered by a LeRoi 140-inch 4-cylinder engine, 27 bhp at 1,550 rpm, the

(*Continued on Page* 211)

MORSE BOULGER

Two Bests

1 WASTE DISPOSAL BY INCINERATION

2 INCINERATORS BY SPECIALISTS

Foreground—rectangular combustion-mixing chamber; background—cylindrical ignition chamber; Morse Boulger Mechanically Stoked Incinerator, Sydney, Ohio

Select from this list of five different types and you will get the best type for your particular problem whether it is trash, garbage, sewage sludge, institutional organic matter . . . separately or in combination.

★**For Garbage and Rubbish**

(1) Cell and Hearth
(2) Circular Hearth and Grates—Mechanically Stoked

★**For Sewage Sludge Drying and/or Burning**

(3) Multiple Zone Furnace—Mechanically Stoked

★**For Garbage, Rubbish and Sewage Sludge**

(4) Circular Unit, Mechanically Stoked, with Separate Compartment for Sewage Sludge Reduction

★**For Garbage and Trash (Individual Buildings)**

(5) Kernerators (Flue-Fed and Ready-Built)

Our incinerator experience goes back nearly sixty years. Our work is guaranteed. Our incinerators are constructed under the supervision of our own field men who stay with it until the unit is in operation, fully broken in and crews instructed.

MORSE BOULGER DESTRUCTOR CO.

205-R East 42nd St., New York 17, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

ZONEMARK

THE INTERNATIONAL TRAFFIC PAINT

This four-lane southbound artery in Baltimore orderly channels traffic with Zonemark.

5 yardsticks to measure the value of "ZONEMARK"

1 **QUICK DRYING**
May be driven over without pickup in 15 to 30 minutes according to weather conditions.

2 **WEARS LONGER—BY TEST**
Your own records will prove that Zonemark outwears other paints.

3 **GOES FARTHER—BY TEST**
Impartial tests prove Zonemark has 10% to 30% greater coverage.

4 **COVERS WITH ONE COAT**
One coat covers the darkest surface with a clear-cut opaque film.

5 **DAY AND NIGHT VISIBILITY**
Correct surface finish assures greatest visibility by night or day.

•

no other traffic paint has ALL these advantages

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Available in
White • Medium Yellow
Orange • Bright Red • Black

ZONEMARK

THE INTERNATIONAL TRAFFIC PAINT

Made Exclusively By

HANLINE BROS.

Paint Makers

BALTIMORE 30, MARYLAND

MI-CO

PARKING METERS...

the meter with fewer moving parts

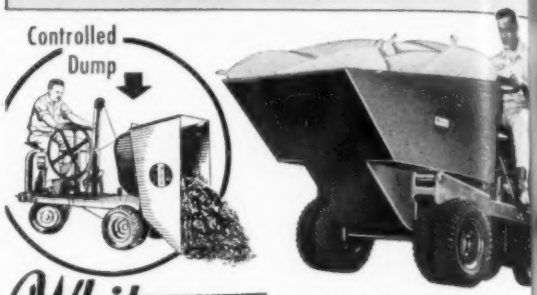
The reduction of moving parts in MI-CO Meters is one of the principal reasons for their unbelievably low cost maintenance. Other reasons are: simple, rugged construction; mechanism that is quickly and easily accessible; hooded coin slot that prevents insertion of foreign objects into mechanism, a slot that does not clog up with freezing rain, ice or snow. With MI-CO's simple construction, adjustments, whenever necessary, are usually made in a few moments right at the meter location. That's why MI-CO Meters pay out quickly... they are seldom out of order. Down time is costly to you and to the motorist. Buy a meter that can be depended upon to keep operating under all sorts of adverse conditions. Such a meter is the MI-CO. We'll be glad to send you all the facts.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc.

Representatives Wanted

Hustle 5 wheelbarrowsful per load... at 10 m.p.h.



Whiteman POWER BUGGY

will easily carry anything you can load in or on it. Does the work of 6 men. Controlled dump makes it easy to pour wet concrete, or part of a load. Turns on a dime. For maintenance or moving bulk materials, it quickly pays for itself.

Capacity: 2000 lbs. or 12 cu. ft.
•
7 H.P., 4 cycle, air cooled
•
Turns in radius—reverses
•
Heavy Steel Bucket 34" high
•
Fits through doorways
•

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Whiteman MANUFACTURING COMPANY

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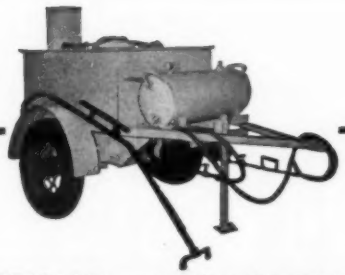


ASPHALT and TAR KETTLES

Fire Proof—Oil Burning

Hand and Motor driven spray. Many sizes. Write for catalog.

Elkhart White Mfg. Co. Indiana

MOVING? Be sure to give us 30 day's notice of your change of address—and let us have your old as well as your new address.

Unless you do this you may skip an issue or two before the correction is made—and you won't want to be missing any issues of THE AMERICAN CITY these days!

THE AMERICAN CITY

470 Fourth Ave., New York 16, N. Y.

machine is equipped with a radiator, magneto, oil-filter, air-cleaner, 7-gallon fuel tank, battery, electric generator, and starter. Cast iron disc wheels are mounted in the front on ball-bearings and automotive knuckles with Gemmer steering gear; traction wheels, on Timken bearings, are gear-driven, with screws for unmeshing when towing.

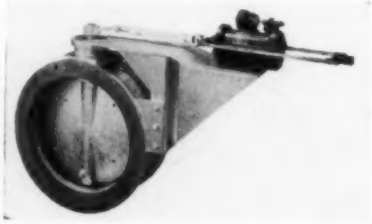
The KR-5 is manufactured by the N. P. Nelson Iron Works, Inc., Clifton, N. J.

Bailey Meter Recruits Large Training Class

The Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio, inaugurated its 1948 Cadet Engineering Class with the largest attendance on record. Including several engineers from Canada and one from England, the course consists of lectures on the theory of Bailey meters and control systems, factory training in the assembly and calibration of Bailey equipment, work in the proper application of Bailey equipment, and practice in drawing up specifications for those applications.

The course is concluded with a temporary assignment to one of the closer branch offices where the engineers gather actual experience. Upon completion of the training course, these engineers will become part of the company's staff of over 100 resident engineers throughout the United States and Canada, where they will be available to advise and assist power and process engineers.

Understanding the Butterfly Valve and Its Place in the Municipal Field



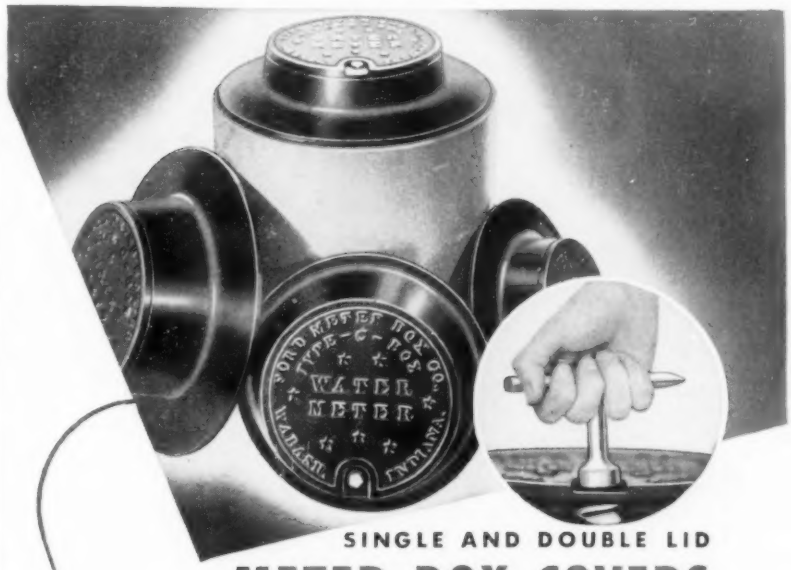
Meeting the gap between the slowly operating, moderately priced gate valve and the precise, machine-like, fast-operating cone valve, there lies the relatively inexpensive and yet rapidly operating butterfly valve. However, its use, to be effective, requires an understanding of its limitations.

The Henry Pratt Co., 2222 South Halsted St., Chicago 8, Ill., manufacturers of the Pratt rubber-seat butterfly valves, has outlined the specialized uses of these valves. The valves open and shut easily, requiring only a relatively few seconds of operation even for the largest of valves. Their balanced design makes it possible to operate the valves even against full differential pressure. This contrasts with the operation of gate valves, which have to be valved down slowly with several operations, in order to shut off a valve where a break has taken place. The butterfly valves may be hand-operated, chain-wheel-operated, motor-operated or cylinder-operated, as the particular situation in the installation dictates.

The rubber-seat butterfly valves are drip-tight at pressures of 25 psi or less. At greater pressures the valves will leak. If this leakage is not a factor then the valves can be used in lines of higher pressure. The valves also place an obstruction in the lines. They operate around a central axis, and the existence of this axis would be an objection to some who would like a clear line for cleaning and for other purposes.

Inasmuch as most water is distributed at higher pressures than 25 psi, the valves probably would not be useful in distribution systems except under specialized conditions. They could be used in supply and transmission lines where more moderate pressures can be used.

They have a real place in power-plant work for controlling the flow of condenser circulating water. They also have an interesting application in the control of pulverized fuel, frequently used in power-plant work. They can and are being used for control of flow in certain sewage-treatment plants. These valves are available in sizes ranging from 10 inches to 72 inches.



SINGLE AND DOUBLE LID

METER BOX COVERS

for every Climate and Condition

Ford Meter Box Covers are made in sizes to fit on meter box barrels or tile from 15" to 36" diameter. They are made with several sizes of lid openings, with inset or overlapping lids, for sidewalk or lawn installations, for light or heavy traffic conditions. For really cold climates double-lid covers are recommended.

All are fitted with the Lifter Worm Lock that effects a tight fit, permits easy opening even when sealed with ice or dirt and makes it easy to lift the lid with the key.

Send for complete Ford Catalog No. 46. It describes Ford Covers and many other useful devices for more efficient metering of water services.

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES

FORD

Wabash, Indiana

MARTIN model 22 TRAILER

ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.

EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.

JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.

There is a MARTIN TRAILER for every hauling job.

At your request let us send you detailed specifications and prices.

MARTIN MACHINE CO. KEWANEE, ILL.

New . . . Permanent

HOLD EVERYTHING!
SEE THE NEWEST AND BEST

LAKE SHORE

PERMANENT ALUMINUM STREET SIGNS

LOW COST NO MAINTENANCE

VISIBLE DAY & NIGHT

Wire or Write Today for Complete Information

Catalog #20-5 Illustrated

LAKE SHORE MARKERS

Div. of Lake Shore Pattern Works

654 W. 19th Street, Erie, Pa.

An authority writes on environmental sanitation—

PUBLIC HEALTH ENGINEERING

Volume I

By EARLE B. PHELPS,

Professor Emeritus of Sanitary Science of the School of Public Health, College of Physicians and Surgeons, Columbia University, and Professor of Sanitary Science, College of Engineering, University of Florida.

In *Public Health Engineering*, the author presents a unified treatment of the entire field of environmental sanitation. Professor Phelps has written this volume primarily for the engineer who has learned *how* to design and build. His aim is to explain, in the light of present day knowledge of sanitary science, *what* to design and *why*. The trained engineer will find the emphasis on the public health aspect especially valuable. Chemistry and the biological sciences form the approach to the subject. For this reason, the book is also particularly useful to the medically trained student of public health.

1948 655 pages $7.50

ON APPROVAL COUPON

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440 Fourth Ave., New York 16, N. Y.

Please send me, on 10 days' approval, a copy of Phelps' PUBLIC HEALTH ENGINEERING. If I decide to keep the book, I will remit $7.50 plus postage, otherwise, I will return the book postpaid.

Name _____
Address _____
City _____ Zone _____ State _____
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(Offer not valid outside U. S.) AC-9-48

SUBSTANTIAL PROFITS!

Build and Own a Trailer Park

There's good profit in accommodating the more-than-million responsible citizens who own trailer coaches. Your community needs a good, profitable park. T.C.M.A. can give you valuable facts and guidance, even to free architect's plans and the specific advice of experts retained by the Association.

Write today, as the first step; ask for "*Planning a Profitable Trailer Park*," containing a wealth of pictures, diagrams and cost data. Address Trailer Parks Dept. at address below. Box 927.

TCMA TRAILER COACH MANUFACTURERS ASSOCIATION
CIVIC OPERA BUILDING • CHICAGO 6, ILLINOIS

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RESEARCH FIRST for Over FIFTY YEARS ENGINEERING

WATER CONDITIONING AND WASTE TREATMENT EQUIPMENT

Write or call nearest Field Engineer or Chicago Headquarters

Atlanta	Detroit	Minneapolis	Philadelphia
Baton Rouge	El Paso	New York City	St. Louis
Boston	Houston	Omaha	San Diego
Buffalo	Indianapolis	Orlando, Fla.	San Francisco
Cleveland	Los Angeles	Pittsburgh	Seattle
Denver			Tulsa

INFILCO INC. • 325 WEST 25TH PLACE • CHICAGO 16, ILLINOIS

New Street Name Signs In Austin, Texas

To the public the important feature of a straight sign is *visibility!* To the city fathers it's *visibility plus maintenance!* An excellent example of awareness of the importance of good guide posts is Austin, Texas. Before the war it had 1,550 porcelain-enamel street markers. In a state capital with a population of 112,000 and thousands of out-of-towners passing through continually, this was far from enough. In the last few months, Austin has purchased 11,426 more porcelain enamel street signs made by Texlite, Inc, of Dallas. Why porcelain enamel signs? Because a survey by the city showed them to be the most visible and the lowest in cost of maintenance and repair. The survey showed that painting the names and block numbers on street curbs was inefficient. Motorists could not easily see them from the car. Rubbing tires of parked automobiles defaced or obliterated the names.

The new street signs on posts carry both the name of the street and the block number, as the photograph shows. Having white letters on an orange background, they fit into the Austin color scheme. Other Texas cities marked by these signs include Dallas, Dennison, Kilgore, and Delhart.

Jacobsen Buys Standard Mowers

The Jacobsen Mfg. Co., Racine, Wis., has purchased the manufacturing and sales rights of the Standard rotary power mower from the Standard Mfg. and Sales Co., Lebanon, Ind. The mowers, leaf pulverizer, and other units will be manufactured by the Worthington Mower Co., a Jacobsen subsidiary.

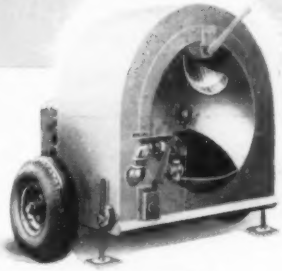
Don't Guess at Water Use

One principal reason why it is difficult for water departments to compare the amount of water pumped with that actually used is that much of the water taken from hydrants is unmetered. This leads to the familiar "estimate" that throws to the wind any accurate comparison.

To overcome this difficulty, many cities use the Sparling Fire Hydrant Meter. It can be connected in one minute to a fire hydrant and will furnish an accurate measurement of water used for street flushing, hydrant flushing or for any other similar purpose. These are only a few of the many uses that may be found for a portable meter so readily attached to fire hydrants.

The Type CF-246 Sparling fire hydrant meter, priced at $200, is of light, simple design and rugged construction. Bulletin 310, issued by R. W. Sparling, Box 3277, Terminal Annex, Los Angeles 54, Calif., describes this and other measuring equipment useful to municipal water utilities.

EIGHT TO TEN BATCHES
more per barrel of Asphalt!



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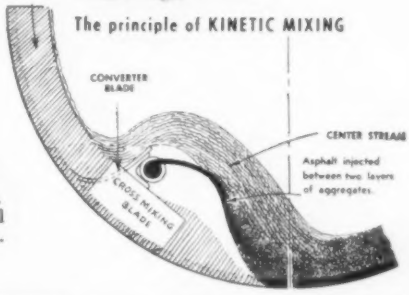

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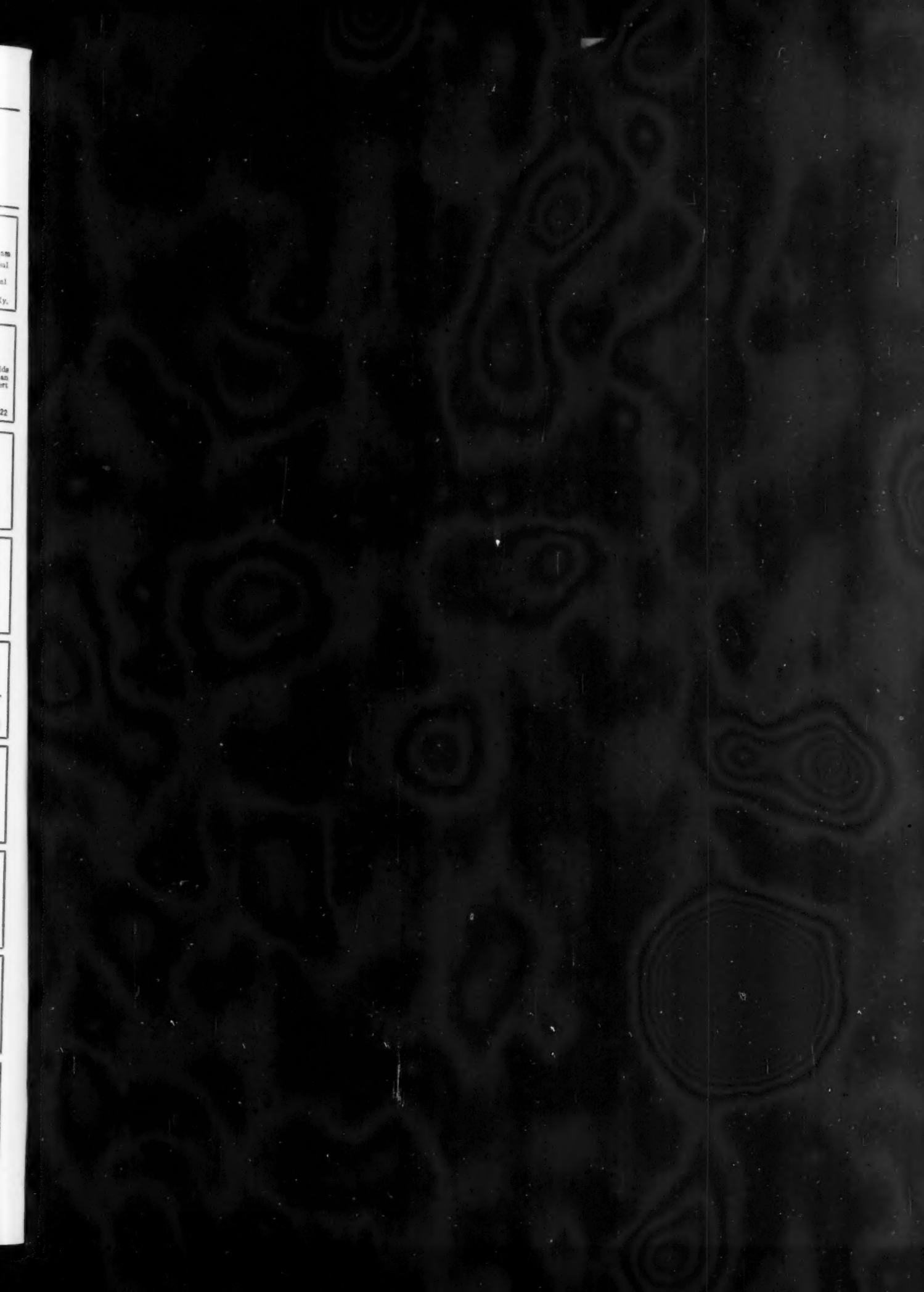

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Modern street lighting system in Riverside, Calif., convention city of American Water Works Association, California Section, October 27-29.

See pages 90 and 133 for water-works and street-lighting articles by Superintendent of Public Utilities L. W. Grayson, vice-chairman of the California Section.